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On Promoting Vegetation.

AN INQUIRY CONCERNING THE PRINCIPLES OF VEGETATION; WITH A VIEW TO ASCERTAIN THE MOST CERTAIN MEANS OF PROMOTING ITS IMPROVEMENT AND GENERAL EXTENSION THROUGHOUT THE COUNTRY.

BY JOSEPH WIMPEY.

The subject of this inquiry has been an object of pursuit in every age, and of every civilized country; not uniformly, and uninterruptedly, indeed, but in proportion to the peace and tranquility of respective states and times. *Rome*, once the mistress of the world, did not shine more in the arts of government and civil polity, than in the cultivation of her lands; and we find the same patriotic statesmen, who rendered themselves immortal by their unremitting efforts to support and maintain liberty, were not less eminent for their patriotic ardor to promote and encourage the beneficial culture of its soil.

Wars, intestine commotions, and civil broils, have ever been found unfriendly to science and the arts; but to none more so, than to agriculture; for when the condition of the farmer is rendered precarious by civil discord, or threatened or actual invasion, he has little inclination and less encouragement to attempt improvement, and still less to plough and sow, it being uncertain who may reap; indeed, whether there will be any thing to reap; it having in times past too commonly happened, that whole countries have been ravaged and become desolate by the desperate frenzy of hostile and bloody contenders, who too frequently are deaf and blind to the remonstrances of humanity.

Some writers of great ability have supposed, that the advance of commodities in price is rather apparent and nominal, than real. Things are not so much, if at all, advanced in price, say they, as is imagined. The precious metals are exceedingly increased in quantity, and proportionably fallen in value.* Possibly there may be some truth in this observation, if we go back some hundred years, and if taken upon a scale that comprehends all commercial and manufacturing countries; but for the term of twenty, or fifty, or even from the time Mr. LOCKE wrote to the present hour, there is little difference in the value of silver or gold; an ounce of either being of much the same value now as then.† The fre-

* It is an undeniable fact, that the specie of the country has more than doubled in amount, within the last ten years, by actual importation, after deducting the amount exported—and this does not include the immense sums introduced by emigrants, nor the receipts from our domestic mines, the latter of which will exceed the annual abrasion, as three hundred and fifty to one. Notwithstanding this, and the abundant evidence of national prosperity, and returning confidence, and in a time of profound peace, too, the banks of Philadelphia have been compelled to suspend specie payments—or in other words, they are either unable or unwilling to meet their engagements with the people.—The Baltimore, and some other banks, have followed suite. The consequence is, that the farmer, the mechanic, and the laborer, bear the burden of suffering. By this means specie has acquired a fictitious value.—We hope that in this emergency the farmers, and mechanics, and tradesmen, will assert their rights, and not be humbugged by countenancing the fraudulent and destructive system of *shin plaster* currency. In this most deplorable state of things it becomes the people to observe the laws—they are all sufficient for this emergency. If the banks see fit to violate the laws and break their plighted faith, so be it—but let the people beware of imitating their example.—*Ed.* 18.

† It is a fact. The act of Congress of 1835, regulating the value of coin, but slightly affected its value.

quent and sudden changes that take place in the price of grain and other commodities, which sometimes are nearly double the price one year they were the foregoing, must be owing to some other cause than that abovementioned, which operates slowly, if at all, and is not perceivable in less time than a century.*

If the quantity of grain and provisions at market always bore the same proportion to the demand there is for them, the price would be always invariably and unchangeably the same. The variation of prices, therefore, is governed by the variation of the said proportion. [As a general rule this is correct—but we should bear in mind that there are exceptions to all general rules.] If the demand be greater, and the quantity the same, or the demand the same, and the quantity less, the price must necessarily advance: and *vice versa*, if the quantity should increase, and the demand continue the same, the price must as necessarily fall; and it is not in the power of man to make it otherwise. But though this immutable relation is beyond our power to alter, we can by art and industry increase the quantity, and thereby lower the price; cheapness being the infallible consequence of plenty, which is the direct object and effect of an improving cultivation. This is a matter of great consequence to the laborer, the manufacturer and merchant; and no disadvantage to the grower; because what he would lose by the fall of price, he would gain with interest by an increase of quantity.†

It is not easy to conceive how many and how great the improvements are, which have been made in this most important of all arts, within the last sixty years. A patriotic spirit of uncommon ardor hath gone forth, and our best men, like the Senators of Rome, have set, as it were, their hands to the plough, and excited their neighbors to practices of which they had no idea before. Yea, they have done more; they have instituted societies, and made them the receptacles and distributors of useful knowledge; they have raised subscriptions, and added marks of honor, and pecuniary advantages, to the rewards which naturally result from the attention and industry of the ingenious artist. Surely the greatest respect is due to the members of all those institutions, whose motives are—*public good and universal usefulness.*

But it must be allowed, that, although much has been done, there still remains much more to do. Experimenters have not always (perhaps but seldom) entered into the views, and ably seconded the intentions of those valuable institutions. Animated with the hope of obtaining the premiums held out, by dint of extraordinary exertions, expensive manures, and a concurrence of fortunate circumstances, more the effect of chance than of design, they often have been the successful adventurers, though at the same time entirely ignorant to what causes they owed their success. We too often indeed ascribe effects to causes which are no way connected with them. The practice of such men is more like the nostrums of quacks, than the receipts of a regular physician. The medicine may be good, but being ignorant of principles, they know not how to accommodate it as different circumstances may require.

How vegetation may be carried to the greatest degree of perfection, by means easily practicable, and at the same time the most advantageous to the husbandman, is one of the most important inquiries that the human understanding can be employed in the pursuit of. Some ingenious men, however, have made the following the previous question,—"What is that substance, matter, or thing, which is the true and only proper food of plants; which enters into the vessels appointed by nature to receive it, is assimilated by, and becomes constituent parts of them, augmenting their magnitude, extension and weight, from an almost imperceptible atom to the weight of many tons, and to a body of inconceivable dimensions?"

This seems, to me, much more curious than useful, and is perhaps of very little consequence to the husbandman. The philosopher may amuse himself by inquiring after first principles, and the elementary parts of bodies, but the farmer should never be diverted from a profitable practice, until one more so is recommended by the success of repeated experiments.

Various are the opinions of the learned concerning this matter. Some suppose the food of plants to be water; some earth; others air, nitrous salts, oil, &c. &c., perhaps all of them wide enough of the mark. It must be confessed, we know nothing of the *essence* of things. We are not endued with faculties equal to the curious research. Things are known to us by their *properties* only. But what are their properties, by which they are

* Speculation—the bane of our country—has unfortunately very frequently raised the price of the necessaries of life, to the direct and manifest injury of the laboring classes of the people—and the ultimate disadvantage of the farmer. Speculators, we know, have been in the practice, in some parts of the country, of contracting with farmers for all their produce of grain at a fair price—a number operating in this manner monopolize the grain market, and when the grain is converted into flour, they demand their own *extortionate* price, and hold on to it until it is obtained, or the prospect of a bountiful harvest, like the mildew, blights their expectations, and brings down the staff of life to its regular grade in the scale of prices.

† This is not always the case. Of two profits *nominally equal*, that is to be preferred which is obtained with the *least expense of labor*. That which arises from an *increase of quantity*, is clogged with the *greatest*, and much more care and trouble.

known to us, but certain powers to affect us in a particular manner, and to impress different sensations and perceptions on our bodily organs? These different perceptions, indeed, enable us to distinguish, accurately enough, one thing from another; but we are totally ignorant of the nature of those powers, and equally so of the essence or substratum in which they inhere, and by which they are supported.*

The great system of the universe is governed by general laws, which, so far as our knowledge extends, obtain universally. Gravitation, attraction, repulsion, cohesion, and perhaps many other principles, affect every portion of matter that comes within our knowledge; but what supports those powers, in what their energy consists, or from whence they are derived, we are by no means able to apprehend or conceive. Vegetation also obtains universally on this globe. Wherever there is earth, vegetation takes place; therefore the principle (or principles) of vegetation, whatsoever it be, or in whatsoever it consists, must be universal; and all that is necessary for the husbandman to do, is to prepare his ground effectually, put in his seed or plants at the proper season, and vegetation will most assuredly follow. Indeed, so prolific is nature as to clothe the face of the globe with herbs and plants in every region, without the intervention or assistance of man. The fund or magazine, then, which furnishes the pabulum or food of plants, is established and supplied by the economy of nature, seeing it obtains at all times and every where, unassisted by art. But how and in what manner nature is to be assisted, how and by what means vegetation is to be promoted, and carried to its utmost and most beneficial degree of perfection, is the grand *desideratum*, the great and important object of our inquiry.

The principles of vegetation, and the means by which it may be promoted in the most successful and beneficial manner, may be fitly divided into three general heads, and distinguished by the terms *mechanical*, *chemical*, and *nutritive*. The *Mechanical* includes every operation which tends to break, divide, and pulverize the soil; whether it be by ploughing and harrowing, digging and hoeing, or by any other means whatever; that being the most eligible which most effectually performs the operation at the least expense.

Pulverizing the soil may be truly considered as the first step towards an improving vegetation; not as *producing* the food or nourishment of plants, but of putting the soil into a fit condition for *receiving* it, from whatever source it may be derived, and giving easy access to the roots and fibres which extend themselves every way in quest of the same.

Chemical principles produce much the same effects, but in a way we cannot so easily, nor so perfectly, comprehend. The mechanic powers are subservient to our will, and we can continue the use of them until the desired end is obtained; but the effects of chemical operations are not so certain in this business, as a certain concurrence of circumstances, not always in our power to procure, is necessary to produce the hoped-for success. Much depends upon the temperature of the seasons, the state of the air, and many other things not in the power of man to foresee or to govern. Fermentation seems to be the principal agent in promoting vegetation by chemical powers. This divides, attenuates, and subtilizes, by means of an internal motion of the parts, which we cannot clearly conceive. Probably it is on this principle that marl, chalk, shells, and every kind of calcareous earth, are fertilizers of land. Not by any matter or substance inherent in them, as constituent parts of the same, but as absorbent bodies, which attract much more powerfully the principles of vegetation than earth alone could do.

We come next to inquire concerning *Nutritive* principles. And here we have a field to range in as capacious at least as the earth we inhabit, together with its atmosphere; perhaps much more, even not less than the solar system, as that immense body of fire, which is the centre thereof, gives life and energy to the whole creation; and annually revives, reanimates, and bestows rejuvenescency on the whole animal and vegetable world.

But before we proceed on this inquiry, it may be proper to make a few observations, the truth of which is self-evident, and consonant to the common sense of mankind. By common sense, the writer does not mean common *opinion;* for nothing is more vague and liable to error than that; but those ideas which are the same in all men, as proceeding from identical or similar sensations and perceptions involuntarily impressed upon them. This is the true and only defensible meaning of the term common sense, though it is frequently made to stand for, and express, principles which are supposed to be innate in the mind, but in fact have nothing common or identical in them, but are as infinitely diversified in different men as are their features.

There seems to be a natural relation, connexion, and dependence, between the animal and vegetable kingdoms. No part of the terraqueous globe that we know of, that is occupied by living creatures of any kind, but is replete with vegetables proper for their sustenance and support; and it is equally certain, that wherever vegetables grow and flourish,

* We think that the application of science to the pursuits of agriculture, by Sir H. Davy, A. Young, and others, has tended in a great degree to raise the veil.

it is stocked with animals in proportion thereto.

It is sufficiently obvious, that the animal kingdom is maintained aud supported by the vegetable; for though carnivorous animals eat little or no vegetable food, yet they live upon those which are entirely supported by it; for they never eat each other, unless in cases of famine or great distress. It is very possible the vegetable kingdom may no less depend upon the animal for its sustenance and support, than the animal doth upon it; and if the writer is not much mistaken, pretty clear and strong evidence may be had, that this is really the case; so that they reciprocally subsist on and are supported by each other.

It is not many years since, that a surprising discovery was made by that very celebrated investigator of nature, Dr. Priestly, who clearly proved by experiment, that common air, when become feculent and putrid by animal respiration and perspiration, so as to be unfit for the common purposes of life, is readily purified and made wholesome by the vegetable kingdom, which imbibes and absorbs those putrid streams that are so deadly noxious to animal life. But what is most surprising, instead of growing sickly in so impure an air, as he expected, he found the plants were invigorated and their growth promoted thereby; so that they were more fresh, green, and healthy, than those which grew in common wholesome respirable air.

This wonderful economy of nature loudly proclaims the wisdom and goodness of Providence; for how great soever might be the fund of common air necessary to the purposes of life, such is its continual waste and consumption, that the whole stock must soon have been exhausted, and animal life become extinct, if no provision had been made to purify and render wholesome the original stock, as daily use might require.

But not to insist on a particular instance which may be thought too curious to establish a general principle, let us inquire how far this doctrine may be supported by the concurring testimony of all mankind, in which there is not a possibility of deception; for if those facts which are agreeable to and supported by the common sense of mankind, cannot be depended upon for certain infallible truths, then there is no such thing as certainty attainable by human nature. Is it possible to doubt, if that glorious luminary, the sun, which dispenses heat, and light, and life, to this lower world, hath any real existence, and is the cause of those sensations? Surely it is not; and yet in what does this certainty conist, but the common sense of mankind. I see, feel, perceive, and am affected in a particular manner by the appearance of this fountain of life; all mankind are impressed with identical or similar sensations, perceptions, and affections; therefore no man doubts, or can possibly doubt of, the certainty and reality of the sun's existence.

All truths which are derived from common sense, are equally certain with the above; for if it were possible that all men could be deceived in any of those sensations, perceptions, and affections, which are common to all men; that is, if they could see, feel, and be affected in any way or manner they could not see, feel, and be affected, then truth and certainty to the human mind would be an impossible thing; there being no *criteria* by which truth might be distinguished from faleshood, nor man imbued with faculties to perceive and mark the difference of things.

Those things then which are felt, perceived, and produce the same sensations and affections in all men, and every where, may be depended upon as truths infallibly certain, beyond a possibility of deception. Not so experiments made by the most careful and the most candid, till they have been repeated again and again; and the first trials confirmed and duly authenticated by subsequent ones. Much more is to be feared from the cunning, the artifice, the prepossession, the prejudice, the vanity, and the interest, of designing men, who too frequently have been found to warp and bend their accounts, to promote their interested views.

It is in the observation of every man, from the most illiterate to the most enlightened, that all kinds of animal substances, when thoroughly digested and corrupted, are the strongest and most powerful promoters of vegetation. The hair, the skin, the horns and hoofs, the urine and excrements, the flesh, blood, sinews, and even the bones, are all richly replete with matter which supports and invigorates vegetation universally. It is therefore undeniably certain, that animal substances contain those principles which are the real and genuine food of plants. It is absurd, therefore, to suppose their food is earth, or water, or air, fire or heat, or any *one* or *single* simple element or thing whatever. It seems clearly evident, that it is a combination of principles derived from animal substances by the chemistry of nature. When animal substance has been thoroughly purified, almost the whole becomes volatile, and is so far attenuated, subtilized, and refined, as to be rendered capable of entering the roots and fibres of the minutest plants.

It seems then, that as the animal kingdom is entirely supported by the vegetable, so is the vegetable by the animal, and each is reciprocally the support of and is supported by the other. The matter of each is essentially the same, each is indued with the principles of life and augmentation, though appearing

under very different forms; each mutually transmutable into the other by the mere unassisted operations of nature.

Hence it seems to appear, that the wisdom and goodness of Providence have established the means of supporting and upholding the present system of the universe, till time shall be no more, by constant, uniform, uninterrupted powers or laws, which act unceasingly for the mutual conservation of the whole.—Every atom of matter, whether animal or vegetable, seems to teem with life, yet contains within itself the seeds of corruption and decay. In that state it enters into a new system of organization, and becomes the principle of regeneration and rejuvenescence, which annually returns at the appointed seasons, when all appears charming, sprightly, and gay.

To this theory it may be objected, that vegetation may be successfully promoted by vegetable manures, without the least assistance from animal substance of any kind.—Every one knows that it is common to manure the ground by ploughing in green vegetables, such as buck-wheat, clover, &c., which often succeed well without any other help whatever. This objection falls short of its object; it only proves, that profitable crops may be obtained without the cultivator's using animal substances under that form; but the theory supposes, that every vegetable is replete with principles derived from animal substances, and only differs from them in being more subtilized and refined.

It is equally certain, that vegetation may be powerfully promoted, without laying on or providing any manure at all. The horse-hoeing system of husbandry depends entirely upon reducing and pulverizing the soil. It cannot be reasonably supposed, however, that the spade and hoe, or plough and harrow, or cultivator or scarifier, convey any fertilizing principles. These operations, which are found to render our lands so surprisingly fertile when judiciously performed, only prepare the soil for the easy entrance of those fertilizing principles with which the atmosphere is abundantly replete. The atmosphere is the grand magazine, the great receptacle of putrid exhalations, which incessantly fly off from all animal substances, the living as well as dead; and by their specific levity mount up into the air, from whence, being condensed, they return in dews, rain, snow, &c., and impregnate the soil as deep as it hath been duly pulverized.

It seems very evident then, that whether the husbandman manure his fields from the dung-heap, or by ploughing in green vegetables, or by duly exposing it to the unceasing influence of the atmosphere; the principles of vegetation which he bestows in either case, are essentially and substantially the same. They all equally originate from putrid animal substances. That from the dung-heap is indeed by far the strongest, it having not gone through its last stage of digestion and putrefaction; in this gross and impure state, it sometimes poisons and kills, and thereby defeats its intended purpose. It in general, however, when discreetly used, gives great luxuriance and an enlarged size to the stalks and blades; but luxuriance is not fruitfulness: indeed, they are seldom if ever compatible. This holds good in all kinds of grain as well as fruits. Manure, imperfectly digested, or used in too great abundance, often defeats the views and hopes of the planter; he may reap a great burthen of straw and very little grain. The same thing may happen from green vegetable manure, unless it be ploughed in time enough to undergo a thorough fermentation, and at the last ploughing be intimately blended with the soil. But of this there is no danger in the last-mentioned method of cultivation; for the principles of vegetation derived from the atmosphere, by thoroughly pulverizing the soil, are so perfectly digested, subtilized, and refined from the impurities of the former, that unhealthiness or a surfeit is not to be apprehended, especially as it is not given all at once like the former, but administered from time to time as the skilful husbandman may see necessary.

I should now proceed, according to my proposition, to consider of the *easiest and most effectual means of promoting vegetation*, in support of, and consistent with, the above principles; but as I apprehend that would run this paper to an inconvenient length, I must postpone it for some future communication.

Observer.---No. XX.

THE VIRGULA DIVINA, OR DIVINING ROD.

"Convince the understanding, and it is impossible for the judgment to withhold its assent."—*Chief Justice Tilghman.*

I do not wish to interfere in the controversy between Dr. HORTON and JAMES PEDDER.—Some of my thoughts were penned for the Cabinet *before* they took the field. I have therefore a common right to sail upon the high seas, but intend to do so under a neutral flag, alike respective of the rights of the belligerant powers. The better to preserve a strict neutrality, I shall neither *affirm* or *deny* the efficacy attributed to the divining rod—or to those who are supposed to possess the faculty of employing it.

My object shall be to call the attention of the reader away from mere assertions—hasty opinions—and false pretensions, to the consideration of the *natural phenomena* which the

case presents, in order that he may arrive at the "whys and wherefores."

Under the specious and imposing names of *virgula divina—caduceus—baculus divinatorius—Aaron's rod*, &c. &c., the *divining rod* has been extensively used for the last eight hundred years, for the two-fold purpose of discovering hidden treasures of the precious metals, and wells of water. Many conflicting opinions and fanciful explanations have been offered. Perhaps the most elaborate work which has yet appeared on the subject was a duodecimo volume by M. Thouvenel, published at Paris, in 1781, wherein he details six hundred curious and interesting experiments for the purpose of illustrating the "Phenomenes de la Baguette divinataire."

I have known several *water smellers*, as they are called in this neighborhood, and have seen them smell for water—and *water was found in all the places where they designated.* But before we can place a just estimate upon facts of this nature, it will be necessary to consider

1. *The means used*,—and
2. *The object sought.*

1. *Of the means.*—In olden times a hazel branch appears to have been in the highest repute for the divining rod. Originally, perhaps, it might have been the *witch* hazel.—Some still prefer hazel—some the peach—apple—elm, &c. A few, however, greater adepts I suppose, use any kind of wood, provided it has the proper form—a close fork with two slender equal branches. (See fig. 15.)

Fig. 15.

A belief in the efficacy of the divining rod implies the existence of something like *polar attraction between it and the water*, whereby the larger end is inclined with considerable force towards the hidden element, somewhat as the magnetic needle tends to its proper pole. To discover this *polarity of the rod*—or more properly to ascertain the situation of the *aqueous pole* toward which it is attracted—the operator first inverts the rod and then grasps the extremities of its branches with his hands, having the backs turned downward and the arms extended. By this manœuvre the branches are *smartly bent outward* near the hands, so as to bring the ends in a horizontal position. (See fig. 16.)

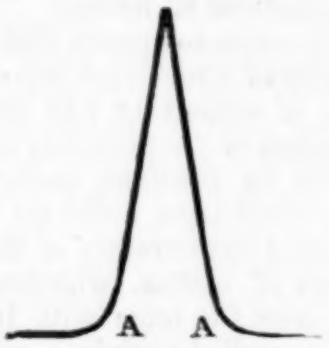

Fig. 16.

Thus equipped the water smeller proceeds to smell for water, not with his nose, but by means of this magic wand. As he walks forward it is alledged that when he approaches a stream of water below the surface, the top of the rod will begin to incline from its vertical position—and that the inclining force will increase till the rod is *greatly bent*—or *broken*—or *reverted to its natural position—sometimes the delicate hands of the operator blister in the process.* The spot where the inclining force is greatest is the one where they say the water will certainly be found—the depth being in an inverse ratio to the force of attraction. Fig. 17 may represent a section of a field having a subterranean stream of water B. The positions of the rod at AAAA indicate the increasing attraction as it is brought nearer to a vertical position over the

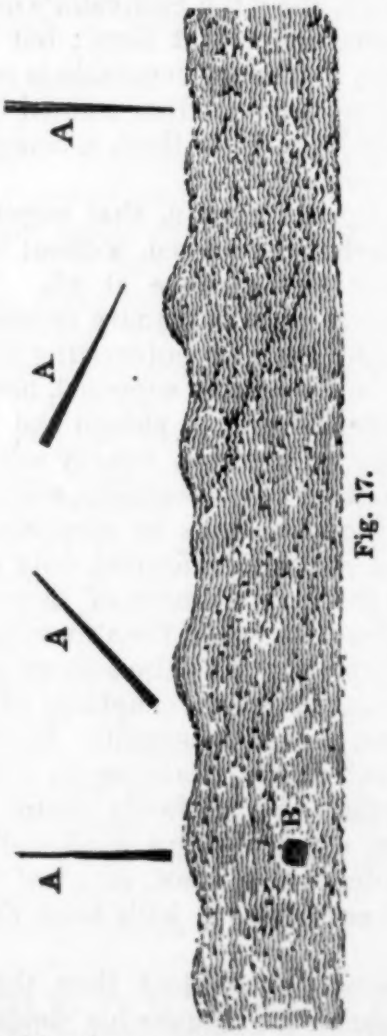

Fig. 17.

water—the operator passing from the right to the left hand.

This inclination of the rod *may* be occasioned by the polar attraction between it and the water—but I conceive that there *are* other causes in constant operation which *must* give the rod just such an inclination to turn downwards. Among these I may briefly notice

1. The *elasticity* or spring of the rod where it is bent near to the hands of the operator.—(See AA fig. 16.)

2. The involuntary and unconscious *relaxation* of the muscles of the hands. This is greatly promoted by their being made to grasp so slender an object.

3. The *force of gravity* acting on the rod itself—giving it a direct tendency downwards. When a long and stout rod is employed, both the leverage and the power will be very considerable—more than sufficient to snap a brittle twig if the hand does not relax its hold. The necessary motion imparted to the rod in walking, increases the facility with which these forces act.

The grand consideration then is to determine whether there may not be *natural causes* in operation amply sufficient to produce the alleged result without having recourse to the aid of *enchantment*. I submit this to the judgment of the reader. Perhaps he could decide more readily if he would make a few experiments either with a forked rod or an *elastic wire*, bent to the proper form, by walking to and fro in his parlor, or while sitting in an easy chair on a rainy day.

2. *Of the object.*—The defenders of the divining rod say that the proof of their faculty lies in the undeniable fact that *water can always be found in the places which they designate*. Now if it were true that water can *only be found in a few selected places*, their fact would go very far to sustain their pretensions. But in order to come at the true value of that fact, it must be taken in connexion with another, which is quite as well authenticated, viz.: That *water can be found in almost every situation within a few feet of the surface*, and without the aid of the divining rod. It is therefore necessary to inquire *under what conditions water exists in the earth*, before we can safely determine whether the divination of the divining rod of the divinor is *adequate and necessary to discover its location.*

The rains which fall upon the earth penetrate it variously, according to the nature and arrangement of the strata which enter into the composition of its different parts. Some of these strata are impervious to water—others allow it to pass freely through them. They are sometimes vertical—sometimes horizontal—or variously inclined.

Influenced by the force of gravity, water constantly tends downwards to its lowest level, and if no obstruction presented would soon occupy a position around the central nucleus of the earth. If the earth were sufficiently porous, and the quantity of water not too great, it would all descend below the deepest valleys, leaving the whole surface one wide arid waste. There could be no evaporation—consequently no dew nor rain—nor fountains and streams of water. (See fig. 18.)

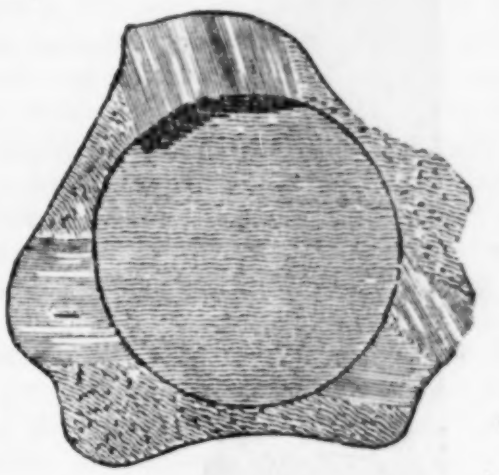

Fig. 18.

The proportionate quantities of earth and water, and the wise arrangement of the heterogeneous materials which compose the globe, has happily produced a better state of things. The water still tends to the centre, but is collected in reservoirs on the surface of the deeper valleys, forming ponds, lakes, and seas. (See fig. 19.)

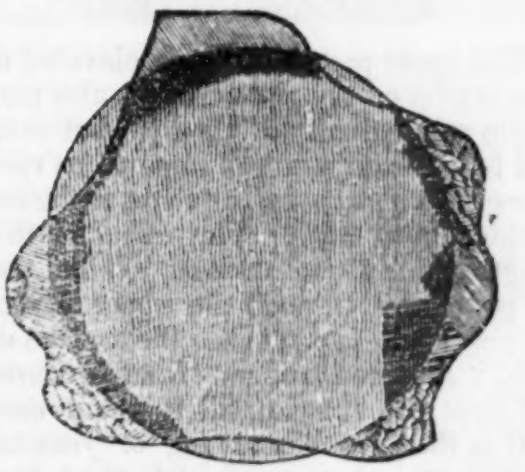

Fig. 19.

Water is rapidly evaporated from those extended surfaces, and diffused through the atmosphere from whence it descends in the form of dew and rain. These not only refresh the surface of the earth; but, by penetrating it, supply the fountains and streams, which in their turn replenish the ocean. But they furnish our wells also.

Fig. 20 may be supposed to represent a portion of the earth's surface. The left hand section is composed of loose materials, which allow the water to sink to its lowest level as marked by the black line—corresponding with

the surface of the ocean at A. Water could be procured any where in this section by digging down to that level, whatever may be the elevation of the surface, as at CCC.

Fig. 20.

The upper part of the more elevated mountain region on the right hand is also pervious to the rains which fall upon it—but is underlaid by inclined strata of impervious rocks.—These strata *crop out*, or come to the surface at their lower edge. The effect of this arrangement must be obvious. When the water percolates through the upper portion of the mountain, and reaches the surface of the rock, it is forced to deviate from its course and to follow the stratum till it again emerges at B in the form of a *spring or fountain*.—This fountain forms a *rivulet*, which by uniting with others compose larger *streams*, that flow into and replenish the waste of the *ocean* below. Water may also be obtained by digging down to the surface of the rock, and intercepting the stream *above* the fountain as at DD. The supply obtained in this way is often more abundant, but less durable than in the former instance. Thus it will be perceived that *without impervious strata there could be no fountains or running streams of water.*

Now if the correctness of these illustrations be admitted, (and perhaps none will deny their general accuracy) the reader will at once perceive what value is to be placed on the faculty of discovering water by means of the divining rod. It *may* and certainly *does* point to a hidden fountain. The divinor smites the thirsty rock with his magic wand, and a fountain gushes forth. But is this divination, or is it chance? Is it in obedience to the *call of the magician* or to the *established laws of nature?* Let the reader answer. I repeat—the rod may unerringly point to the subterranean fountain—it certainly does so—but *that fountain pervades the whole earth—exists every where beneath its surface, and cannot be mistaken.* There can be but little *liability to error* where it is *impossible to err.*

Let the believer divine and dig by the divinings of his rod—and the unbeliever consult his own convenience, and they shall both find water. There will be this difference only—the former will be obliged to place his house by the water—the latter will have water by his house.

It would be a violation of my pledge either to affirm or deny the power of divination to the *caduceus*, but I suspect that very few of my readers will henceforth think it deserving of trial.

New Garden, 10th mo. 1st, 1839.

The Rod again.——Milk Pans.

To the Editor of the Farmers' Cabinet.

Sir,—I perceive that Mr. Pedder is out, in your last number, in reply to an objection to the Divining Rod, and I mean to help him, not because I am more credulous than those who hoot at it, but because there is *truth in the thing*, and I think *science* will help us out.

I shall first state some facts, and then try to show how this seemingly strange thing may be accounted for. Some years ago, having fixed on a site for a house, I was anxious to know the exact spot I ought to dig in order to obtain water. A plain farmer in this vicinity, who was in the habit of finding water for the "folks" without fee or reward, was requested to come and try for me—he found it just where I would have had it, and moreover told me,—"I might dig any where thereabouts and obtain water." This easy good natured direction you may rest assured did not increase my confidence in the *art*; but I dug and found water. Some two or three years after the subject was introduced in a conversation between two gentlemen and myself at my house, and one of them, an elderly man, who had traveled much, said that he was satisfied of the truth of it, and that the divining rod would operate in his hands. The other gentleman and myself having now a fair opportunity to investigate this *absurd* matter, we sallied out forthwith to obtain the necessary instrument, and when obtained and

tried by the old gentleman we saw there was *no mistake*—that at least in certain spots or places there was invariably an involuntary depression of the point of the fork, and by widening the circle round the pump, we felt satisfied that we could indicate the course of the stream that supplied the well. We wished to know why it did not *act* in the hands of all persons alike, and found by repeated trials of different persons, that where the skin of hands was *dry* all was inert—that it only operated where there was a *moist* skin. Another fact was ascertained by our repeated trials at different times—that in proportion as the atmosphere was charged with moisture, the indications were weakened. These facts led us at once to conclude that electricity was the agent.

The rod must be made of a forked twig of the present season's growth—that is, must be full of sap. The end where the two branches meet must be sharpened to a point.

Tell Mrs. JENKINSON, that the "leads" they use for creaming milk in England, will not answer in this climate—they are very unsuitble for a spring house. I have one made on the best and most approved plan, sent me by a kind friend, and have tried it in a vault, and find that it does not answer as well as our earthen pans. Persons who use tin pans instead of earthen, speak well of them. I fear the women will have to hold on to their skimmers.

D. Z.

For the Farmers' Cabinet.

Dialogue between a Father and Son.

Frank.—Father, I see no Garden at all to be compared in beauty and pleasure with ours. The shrubbery appears so large, and the walks so long, although we know that the space which it occupies is but small: this must be occasioned by their winding course, so unlike all our neighbors' plans for laying out their gardens.

Father.—You see that the walks in the shrubbery are what is called *serpentine;* it has been decided that "a curve is the line of beauty," and that, therefore, "nature," which is all beauty, "abhors a straight line." Now, in this, persons have been apt to overstep the bounds of moderation, and it is at length supposed, that walks for pleasure, cannot be made too crooked—they are mere *snail creeps*, and instead of the *swell of nature*, we have the zig-zag of some clever man's brains. Do you know that the human figure can be drawn by taking segments of circles only, which mean, *curved lines*—so that not a straight line shall be followed in tracing it!

Frank.—No indeed!

Father.—You see, then, the justness of the expression, "*The curve of nature,*"—but this gentle swell is very unlike the very crooked walks that are now so fashionable.

Frank.—I have heard also, that "*nature abhors a vacuum,*" but I do not know the meaning of this.

Father.—A *vacuum* means an empty space—and some persons, seeing that all nature is full and perfect, could account, in no other way, for the rising of the water in a pump, when a portion had been drawn up, and an empty space or *vacuum* had thereby been caused in the pipe, and into which the water would instantly rush to supply it: but it is the *pressure of the atmosphere* upon the surface of the wat r in the well which forces it into the empty space, on the unerring principle, that every thing in nature will *find its level.*

Frank.—Now I wish to know more about the *pressure of the atmosphere.* I hear it often mentioned, but should like to understand it.

Father.—It is by means of the air pump, that persons have been enabled fully to understand the subject: this is a beautiful but expensive instrument, by which the air is pumped from under a bell-shaped glass, turned down on its mouth, just as though it were water: you know that water is a fluid—so also is air discovered to be. But we will endeavor to make a very simple *water pump* in about a minute—do you see this glass tube? I will show you by this, the way in which the pressure of the atmosphere operates. Now, I stop the upper end of the tube, and put the lower end into this pail of water.

Frank.—Why, the water has not risen into the tube, it remains empty.

Father.—The tube is already full of air, and it cannot escape, because I keep my thumb on the end of it. I will now unclose it, and see what will be the result.

Frank.—The water rises in the tube, and is now just so high as the water in the pail.

Father.—Yes—as soon as the air could escape, the water flowed in to supply its place, and has attained its level—this, as I said, is the law of nature, and is unerring.—Now then we will suppose this tube to be the pipe of a pump; if we draw the air from the top of this pipe, there will be a *vacuum* formed, and the air, pressing on the water in the pail, will force it into the pipe to supply it in an instant. See! I will draw off the air by sucking it out.

Frank.—Ah! there it rises—but is not this sucking up the water?

Father.—To appearance it is, but it is merely drawing off the air which permits the water to rise; and this could easily be proved to be the true state of the case if this tube were thirty-two feet high; for with all our sucking, it would not be possible to raise the water to a greater height than that; no com-

mon pump will draw or lift water more than thirty-two feet in height. When you are older, I will take you to see what are called philosophical experiments; at present we must be content to examine and reflect in a plain way.

Frank.—But I suppose that this might be called a philosophical experiment?

Father.—Yes—and with a very simple apparatus too; it is enough however to show you the effect of atmospheric pressure on the water in a well.

Frank.—Now, cannot you contrive to make an air pump too?

Father.—Let us try—our tin cup will make a decent substitute. Now fill it with hot water, and when it has stood awhile, empty it, and turn it down into this saucer, and pour a little water into it.

Frank.—Oh! how the bubbles are breaking out all round the edge of the cup, and forcing their way through the water in the saucer!—How is this?

Father.—The air, which is confined under the cup, being rarefied or expanded by the heat, forces its way round the edge of the cup and through the water in bubbles. Now wait a little, and take up the cup, and tell me what you observe.

Frank.—Well, I declare! The saucer sticks so closely to the cup as to be lifted up by it! How did you contrive this?

Father.—It was no contrivance of mine—it was caused by the *pressure of the atmosphere:* upon the escape of the expanded air from the cup, none could enter to supply its place because of the water in the saucer, which formed what is called a *water lute.*—On the cooling of the cup, and consequent contraction of that portion of air which remained confined in it, a partial vacuum was formed, when immediately the external air being heavier than that which was contained in the cup, pressed so forcibly on it as to keep it fixed to the saucer.

Frank.—This is indeed a capital air pump—and I now see how it is, that when a piece of leather, with a string fastened to it, is stamped on a smooth stone, it sticks so closely that the stone might be lifted by it: it is because the air has been driven out from under the leather, and then the *pressure of the atmosphere* falls upon it and fixes it to the stone.

Father.—It is so, and that you may perceive how we are surrounded with objects which call for observation, I will mention a very familiar example of the pressure of the atmosphere, the effects of which cannot have escaped your notice. You know that when we cross the lane leading to Farmer Vince's house, we are in danger of losing our shoes by sticking in the clay?

Frank.—Yes—I have often done that, I know.

Father.—The clay being soft, takes so exact an impression of the shoe, that at every step the air is driven out from under the foot by the pressure of the atmosphere, and the foot is so forcibly pinned down that it is often difficult to raise it. And what is it, do you think, which presses so heavily the hot iron with which your mother smoothes the clothes after washing? The air is expanded by the heat, and is driven out from under it, when, immediately, the external pressure on the iron, great in proportion to its heat, is sufficient to answer the purpose of a mangle heavily loaded.

Frank.—Our theory of haymaking, I declare!

Father.—Exactly—and I am pleased with your application. I was going to say, take a cold iron, and rub it with all your might, and you will scarcely make any impression—the same iron made hot gives one the idea of copperplate pressure; and this is increased by damping the clothes, as by that means, the expansion of the air is greater, and the vacuum thus created more perfect. And see, how one observation leads to another. You have heard *London dirt* spoken of by those who have visited that place, and they declare there is no walking the streets without splashing one's self from head to foot. The reason is this—the pavement is worn so smooth, that at every step the shoe fits it so closely, that the air is driven forcibly out from under it; and then the foot falls so heavily in consequence of the pressure of the atmosphere upon it, that the mud is scattered about on all sides, as though it were *blown up;* while here, in the country, we can walk in the worst roads without scattering the dirt, as the inequalities in the ground give space for the escape of the air, and support the pressure of the foot, by which all splashing is prevented.

Frank.—I wonder how many of the thousands who crowd the streets of London, and complain of the mud with which they are covered, ever think of attributing it to the right cause,—*the pressure of the atmosphere?*

Father.—There is just one more instance which I will mention. You have often heard persons, who wear India rubber shoes, complain of the pain which they experience, if they keep them long on their feet, especially in warm rooms. This is occasioned by the pressure of the atmosphere upon the feet, in consequence of the *vacuum* that has been formed around the feet by the tightness of the rubber shoes, which fit so closely as to prevent any air from entering to supply the place of that which has been forced out by expansion, caused by the heat of the feet: evaporation can therefore no longer go on, and the stock-

ings and feet are often found wet with perspiration on removing the rubbers; while much pain in the feet, as also in the head, is oftentimes experienced, during the time they are worn; the first is occasioned by the pressure of the atmosphere upon the feet, the second, for want of proper circulation and evaporation; all insensible perspiration being checked by the closeness of the rubber shoes; and I have no doubt much and serious illness has arisen from this cause.

Frank.—Then are not those waterproof clothes, now so much in fashion, injurious, from the same cause?

Father.—Undoubtedly they are, and I speak from experience; for I once had a water-proof great coat, to defend me from the heavy rains to which I was at that time exposed, and was for some time at a loss to account for the extreme fatigue and lassitude which I always felt on wearing it, until the thought struck me that it arose from impeded circulation and checked perspiration. I never put it on again, nor ever again did I feel that sense of suffocation and difficulty of breathing, which always affected me when I wore it.

Frank.—Thank you for this lecture on the pressure of the atmosphere; I shall now be able to account for many things which have puzzled me amazingly. But there is still one, which I cannot understand; and although it does not seem to have occasioned much inquiry, it appears to me very wonderful, and I should like to know more about it. I was reading in the Penny Magazine the other day, an account of the vast salt mines in Poland, which, although they have been worked for many ages, seem, at this day, quite inexhaustible. Other countries, also, are found to contain mountains of this mineral in the bowels of the earth, while the never-failing salt springs, which are so often met with in this, and in almost every other country, might be supposed, I should think, to flow from beds of salt buried in the earth; and if so, they must be of infinite extent. I used to think this salt was different from that procured from sea water by evaporation; but it is proved to be identically the same, contaminated, sometimes, with other matters, but when purified, it is, in reality, *marine salt.* Now the question is,—how came such enormous masses of sea salt to be deposited at such great depths in the earth? Were they thus formed at the creation of the world?

Father.—This is a most interesting question, and yet, strange to say, it would appear that no attempt has been made to account for so wonderful a phenomenon. Horne Tooke said, "what a man *troweth*, that is truth," and after much thought and reflection, I have adopted a *theory*—I suppose it might be called—which, although to my own mind it is satisfactory; yet I should almost despair of making it intelligible to others, much less to render it plausible to any; but let us see what we can make of it.

I believe that the elements of this globe, earth, air, fire, and water, were all created at the same time, and are dependent upon each other—all being necessary for the formation of the *perfect whole*—that the fires which are now raging in the bowels of the earth, were kindled at the time of the creation; and that their grand office is, *to furnish the earth with fresh water by distillation*—the water being originally *salt*—that this salt water passes from the sea by secret channels, into the caverns of the earth, where, coming in contact with those subterranean fires, it is by them converted into steam, which, ascending through the crevices of the earth, is at length condensed into streams of fresh water, which form springs—the sources of rivers—upon the surface of the earth. The saline particles of the water, *which cannot be made to rise by distillation*, are left, after this process, in the bowels of the earth—the caverns formed by the burning away of the earth, becoming their receptacles—until they accumulate, so as to form those immense mountains of rock salt, which are there found at the present day, and from whence flow those salt springs of which you have spoken. So then, thus it would seem:—The waters of the ocean are continually escaping through caverns—many of which we have read of; particularly that great whirlpool, Maelstrom, on the coast of Norway, which forms a vast funnel, many miles in circumference, into which, if a ship enter, it is sucked, or drawn down into the abyss, without the possibility of escape—where, coming in contact with subterranean fires, they are instantly converted into steam, which, on condensing, forms springs of fresh water; the residuum, which cannot be evaporated, goes to form those enormous mountains and beds of rock salt in the earth, of which you have read! Now do you understand what I have been saying?

Frank.—I believe I do, but the idea is so new to me, and so astonishing, that I hardly know what to say. And yet, this theory seems to account for these mountains of salt, in a very natural way, as also, for those hot mineral springs in many parts of the world, of which we so often read—*boiling hot*, even upon the surface of the earth, and forced up to an astonishing height by some invisible power; thus forming *boiling fountains.*

Father.—Yes, and this theory accounts for the cause of earthquakes, and all those terrible revolutions, which are continually taking place in different parts of the globe—it would appear that they are all occasioned by the *power of steam!*

Frank.—Astonishing! we have here, at one view, the mighty power of that overwhelming agent! It is enough to *overwhelm us* with awe and wonder!

Father.—By this view, too, we are enabled to understand how it is that although "All the rivers run into the sea, yet the sea is not full," (Ecclesiastes, Chap. i., v. 7) as well as that, "unto the place from whence the rivers come" (the sea) "thither they return again;" for, how can fresh water rivers come from the sea—the waters of which are confessedly salt—unless they have been first deprived of their salt by some process, either in the atmosphere or in the bowels of the earth? And is it possible that this can have been effected by any means, but by *evaporation?* It appears then, that the water which is evaporated by these internal fires, as well as that which is drawn up by the heat of the atmosphere, returns to the sea, to be again evaporated, so that nothing is lost; and that this process has been going regularly on, since the day of creation!

O Lord! how manifold are Thy works!
In wisdom hast Thou made them all.

For the Farmers' Cabinet.

Honey Brook, Chester Co.—Lime, &c.

Mr. Editor,—In looking over your Cabinet, and seeing correspondents from different parts of the country, except from my own neighborhood, and thinking that we, as a community, were called upon to contribute our quota towards the cause of agriculture, I shall endeavor to give you the opinions of some of our farmers,—confining my remarks to *Honey Brook Township, Chester County.*

I shall first give an account of the quality of the land, for the benefit of those who have never traveled through it. In general, the soil is of the best quality; in some places clayey, in others gravelly, and of a sandy nature, and in others, a deep rich loam, well calculated for raising grain of all sorts, particularly *wheat* and *corn*, and in fact all kinds of grain and grass, for all of them at present engage the attention of the farmer, and the only diversity of opinion is, which is the easiest manner of keeping the land in order.—Some say, lime is the only thing; and lime of an excellent quality can be had from ten to fifteen cents per bushel. Others say, that *without manure* lime is comparatively useless, as it will not have that effect that it would, if there was a sufficient proportion of manure along with it.

There is also a difference of opinion as to the *quantity.* Some say forty, and some an hundred bushels to the acre. But this, I think, depends on the nature of the soil; for on clayey ground, eighty bushels will not be found too much, while sandy or gravelly soils, experience has convinced me, will not require as much; for my father has used lime between thirty and forty years past, (he built for his own use, it is supposed, the first lime-kiln in Berks County, the land of which is of a sandy nature) and he never applied more than fifty bushels per acre. Since he removed to this place he has applied on the land as high as one hundred and ten bushels to the acre, and it has not recovered from the effects of it yet, and that is four years since. There is also a diversity of opinion as to the best mode of its application. Some say, put it on the sod which you intend to plough down for corn; others think it best to spread it on grass, two years before it is intended to be put in corn, and I am inclined to the latter operation; but from experience I cannot say, for I have only used it in the former of these two ways. Some think that marl might be used as a substitute for lime, for in some parts we have marl in abundance, by digging from two to five feet; but its value as a manure has never been tested. I will now endeavor to describe its properties as well as I can, for I am no chemist; but I wish some competent person would inform us of its properties. It is found from two to forty feet under the surface of the ground, and generally of a white color, with red streaks through it; but it is of different colors, sometimes green, brown, and of a slaty color, and when dissolved in water, a greasy scum rises on it, which prevents the water from washing, to counteract which some use soda, but others are making rain-water cisterns, and on that account we are engaged at this time in constructing one. When the water has this scum on it, it is called limestone water, from its having a disagreeable taste, like water impregnated with lime. And there are also "sinks," as they are called, similar to the sinks in limestone districts, which can be accounted for in no other way but by supposing that water has washed away the marl (for it is of a very dissolving nature) and has found some outlet, and the surface has sunk down. Some of these sinks are of thirty yards in diameter, and twenty feet deep.

Some are in favor of feeding their own produce to cattle, and making *manure*, and thereby improving their land, independent of lime; while others think that marshy or bog land is the best, as they are always collecting from the high land; but they must be drained—and they inquire how land that is level is to be drained; and that, under such circumstances, appears a difficult matter, and if any of your subscribers could devise some way, they would confer a benefit on a great many in this part of the country.

We have also some *nuisances*, that perhaps some of your numerous correspondents could

devise a remedy for; particularly garlic, wild carrot, and Canada thistle, and elder or bore-tree. The garlic is not confined to this part of the country alone, for I am informed that it is to be found over almost all the state. A correspondent recommends a plan for to destroy it, but experience has convinced me that it will not answer; for I have tried every remedy that I could devise, and all have failed. Some say, turn the field out and let it lie a common, but that wont answer, for there is at this time a field which has been lying out for twenty-six years, as I am informed; and from that time to this there has not one head gone to seed; yet I was surprised on examining it some time since, to find that the roots were there, only waiting for circumstances to revive them; and I think the seed of some weeds will remain for years in the ground, only waiting for circumstances to favor their germination.

Soap Making.

Much difficulty is often experienced by those who manufacture their own soap, frequently indeed the operation succeeds well, but sometimes it totally fails from unknown causes. Often when every precaution has been apparently taken, complete failure has been the consequence; and the time is not long past, when some have even declared that they believed their soap was *bewitched*. But if the rationale on which the process is founded, is but understood, the whole becomes simple and easy; and may be performed with an absolute certainty of success.

Common soft soap is composed of oil (or fat,) and potash. The potash is obtained from common wood ashes, by causing water to run through it, which dissolves the potash contained in the ashes, and leaves the residue behind. The manner by which the oil or grease is obtained is well known. These are made to unite and form soap by being boiled and well stirred together.

One of the first requisites in soap making is that there should be a sufficient quantity of potash dissolved in the water, or in other words, that the ley should be *strong:* this is readily ascertained by an egg; if the egg floats the ley is sufficiently strong; if it sinks, it is too weak, and must be increased in strength by evaporating a part of the water by boiling, or by passing it again through ashes.

But it not unfrequently happens that the ley is found by trial to be too strong, and yet good soap cannot be produced. This is almost always owing to the potash of the ley not being *caustic*, or capable of corroding the skin, which state is absolutely requisite to success. Potash in its purest state is highly caustic; but when ashes have been for some time exposed to the air, they gradually absorb from it a portion of the peculiar kind of air existing in small proportion in it, known by the name of *carbonic acid*, which destroys the caustic properties of the potash, and renders it unfit for the manufacture of soap.—Now, as quick lime has a stronger attraction for carbonic acid than potash has, it is only necessary to place a quantity of lime, in the proportion of half a bushel of lime for a hogshead of good ashes, in the bottom of the leech before filling it, and it will abstract the carbonic acid from the potash of the ley, as it passes downward, leaving it in a comparatively pure and caustic state. In order to prevent failure, therefore, this should always be done. In order to ascertain if ley contains carbonic acid, pour a few drops of sulphuric or nitric acid into a wine glass of the ley, when, if it contains much, a violent effervescence (or boiling up of bubbles) will instantly take place, owing to the escape of the carbonic acid. The carbonic acid may be removed from the ley and render it fit for soap making, by boiling the ley with quick lime.

If the ley be *strong*, if it be rendered *caustic*, and if there be a sufficient quantity of tolerably *clean fat*, there can be little danger of success. The proportions should be about thirty pounds of fat to eight or ten gallons of ley.

Hard Soap consists of soda instead of potash, united with fat; and is commonly made by adding common salt (which consists of muriatic acid and soda,) to well made soft soap while it is yet boiling. The soda of the salt unites with the fat, and forms hard soap, while the potash unites with the muriatic acid of the salt and separates by falling to the bottom of the vessel. Different degrees of hardness in soap are obtained by using potash and soda, at the same time, in different proportions. Hence grease from salt meat has a tendency to increase the hardness of soap unless the salt be previously removed by boiling in water.

Soap of tallow is made in England, and largely in the United States, and is the best in common use; when scented with oil of caraway seeds and cast into a mould, it is used for the toilette, and is called Windsor soap. Other toilette soaps are made with butter, hog's lard, or with almond, nut or palm oil. Sometimes fish oil is used for coarse soaps, as well as linseed oil; and rosin is often added to give a yellow color and odor. The following proportions (by weight) have been given for a good yellow soap; tallow twenty-five, oil four and a half, rosin seven, barilla, (soda) eighteen, settlings of waste ley, evaporated and calcined, ten, and palm oil one-half part.

Soaps are colored blue by indigo, yellow by

tumeric, &c.; and marble or veined soaps are made thus:—to the soap just separated from the spent ley, new ley is added, and then copperas dissolved in water; red oxide of iron (or colcothar,) mixed with water is stirred in it by manual dexterity, is so mixed as to produce the peculiar appearance.—*Gen. Farmer.*

Neat Cattle.

CRITERIA OF DAIRY STOCK.

We copy from the Farmers' Magazine, the following scale of points of Jersey dairy stock, which has special reference to the *producing butter and milk*, but is not designed to apply to cattle for draught or fattening.

SCALE OF POINTS FOR BULLS.

	Points.
Art. 1. Purity of breed on male and female sides, reputed for having produced rich and yellow butter,	4
Art. 2. Head fine and tapering, cheek small, muzzle fine, and encircled with white, nostril high and open, horns polished, crumpled, not too thick, the ears small, of an orange color within, eye full and lively,	8
Art. 3. Neck fine, lightly placed on the shoulders, chest broad, barrel whooped, and deep, well ribbed home to the hips,	3
Art. 4. Back straight from the weathers to the setting of the tail, at right angles to the tail. Tail fine, hanging two inches below the hock,	3
Art. 5. Hide thin and moveable, mellow, well covered with a fine soft hair of a good color,	3
Art. 6. Fore arm large and powerful, legs short and straight, swelling and full above the knee, and fine below it,	2
Art. 7. Hind quarters, from the huckle to the point of the rump, long and well filled up; the legs not to cross behind in walking,	2
Art. 8. Growth,	1
Art. 9. General appearance,	2
Perfection,	28

No prize to be awarded to a bull having less than twenty points.

SCALE OF POINTS FOR COWS AND HEIFERS.

	Points.
Art. 1. Breed, on male and female sides, reputed for producing rich and yellow butter,	4
Art. 2. Head small, fine and tapering —eye full and lively, muzzle fine and encircled with white, horns polished and a little crumpled, tipped with black, ears small, of an orange color within,	8
Art. 3. Back straight from the withers to the setting on of the tail, chest deep, and nearly of a line with the belly,	2
Art. 4. Hide thin, moveable, but not too loose, well covered with fine and short hair of good color,	2
Art. 5. Barrel hooped and deep, well ribbed home, having but little space between the ribs and hips, tail fine, hanging two inches below the hock,	5
Art. 6. Fore legs straight and fine, thighs full and long, close together when viewed from behind; hind legs short, and bones rather fine; hoof small, hind legs not to cross in walking,	2
Art. 7. Udder full, well up behind; teats square and largely placed, being wide apart; milk veins large and swelling,	4
Art. 8. Growth,	1
Art. 9. General appearance,	2
Perfection for cows,	30

Two points shall be deducted for the number required for the perfection of heifers, as their udders and milk veins cannot be fully disclosed.

No prize shall be awarded to cows having less than twenty-one, or to heifers having less than fourteen points.

REMARKS ON NEAT CATTLE.

1. The head small and clean, to lessen the quantity of offal. 2. The neck thin and clean, to lighten the fore-end, as well as to lessen the collar, and make it fit close and easy to the animal in work. 3. The carcass large, the chest deep, and the bosom broad, with the ribs standing out full from the spine; to give strength of frame and constitution, and to allow sufficient room for the intestines within the ribs. 4. The shoulders should be light of bone, and round off at the lower point, that the collar may be easy but broad, to give strength; and well covered with flesh, for the greater ease of draught, as well as to furnish a desired point in fattening cattle. 5. The back ought to be wide and level throughout; the quarters long; the thighs thin, and standing narrow at the round bone; the udder large when full, but thin and loose when empty, to hold the greater quantity of milk—with large dug-veins to fill it, and long elastic teats for drawing it off with greater ease. 6. The legs (below the knee and hock,) straight, and of a middle length; their bones, in general, light and clean from fleshiness, but for the purposes of strength and activity. 7. The flesh should be mellow in the state of fleshness, and firm in the state of fatness. 8. The hide mellow, and of a middle thickness, though in our author's opinion this is a point not well determined.—*Marshall.*

On Seeding.

BY GEORGE WILLETS.

Of all the practices constituting good husbandry, none are more replete with beneficial effects, and which better repay the outlay, than that of seeding. It has become an established practice with good farmers to seed frequently with clover and timothy, a practice that should be adopted by all. It is high time that the practices and opinions of our ancestors; those which derogate from our best interests, I mean, should give place to more modern and more rational views. That there has been great advancement in the science of agriculture, will be conceded by all; then why do we cling so strenuously to ancient practices, when those of modern date are infinitely superior?

I rejoice in the improvement that has been already made. Agriculture has become the theme of the day. The most enlightened of our citizens are embarking in its pursuits, which give assurances of its being ultimately established upon a basis concomitant with its merits. Then it behoves us to follow those practices most clearly demonstrated to be beneficial; and believing seeding to be one of these, I proceed briefly to detail its utility.

The practice of seeding is too much neglected by many of our farmers; a practice which, could they be induced to adopt, I am confident in believing would not be relinquished. The natural grasses yield less of quantity and nutriment than either clover or timothy, and some others of more recent introduction. Double the quantity of pasture may be obtained from a given piece of ground well seeded, than it would otherwise afford; and for mowing there will be a still greater difference.

Independent of this, its fertilizing properties to the soil must be considered. A good sod preserves the soil from the too great influence of the sun, renders it porous, and consequently pervious to nourishment; hence we observe that meadows newly laid down, almost invariably bear the greatest burden.

Whereas grounds not seeded, by being too much exposed, soon become of so compact a nature as to render them in a degree impervious to either heat or moisture, without which they cannot be capable of the least productiveness.

Autumn we consider the most proper time for sowing timothy, and the spring for clover. We have generally made it a practice to sow our timothy immediately after the last harrowing in of wheat, having a person to follow each harrow, which leaves not a particle of ground without seed, and I never have perceived wheat to have been injured in consequence.

The time for sowing clover must depend altogether upon the season, whether early or backward. We have oftener sown too early than too late, and I am inclined to believe that others have fallen into the same error.

In my opinion it should not be sown until the ground begins to dry and become settled, when it will be observed there are innumerable small crevices produced by the contraction of the earth, which will receive the seeds, and which the first rains will close, thereby producing immediate vegetation.

Hussey's Patent Reaping Machine.

Letter of Gen. R. Mansfield, in reply to inquiries made by Dr. J. W. Thomson, Corresponding Secretary of the Agricultural Society of New Castle county, Del.

Near Middletown, (Del.) July 26, 1839.

DEAR SIR,—Your note of the 11th inst. was duly received, in which you ask information respecting "Hussey's Reaping Machine," purchased by the Agricultural Society of St. George's and Appoquinimink Hundreds. I should have answered it immediately, but wanted to make trial of the machine under my own inspection, which I have now done to my perfect satisfaction. I do not hesitate to say it will do every thing the patentee says it will do.*

It cuts a band of from four feet six inches to five feet wide, if propelled at the rate of four miles to the hour, which active horses will walk. Every mile's travel will be above half an acre. It will therefore depend upon the industry of the operators, and the activity of the horses—when kept in full and active operation, it will furnish work for five binders. That it cuts smoother and cleaner than *any* cradle, and lays the grain, if properly attended by the man with the rake, better than nine-tenths of the cradlers that grip the grain is a fact, cutting a smooth stubble of about six or seven inches high. In high projecting, rocky and stumpy ground there would be some difficulty—but on rolling or undulating land it will cut as well as on a perfect level.

The patentee has calculated it for two horses—when I tried it, the ground was soft in consequence of a heavy rain; I therefore attached three horses, which I found to work well and with great ease. The price is one hundred and fifty dollars. Any description I might give of the structure would be imperfect. As it can be seen by any and all per-

* Warranted to cut fifteen acres of heavy wheat in a day, the grain taken as clean and left in as good order for binding as when cut by the scythe or sickle.

sons wishing to see it, I think a personal inspection would be more satisfactory.

I am, with esteem, dear sir,
Yours, &c., R. Mansfield.

Doct. J. W. Thomson, Cor. Sec. N. C. C. A. S.

Self-Acting Cheese Press.

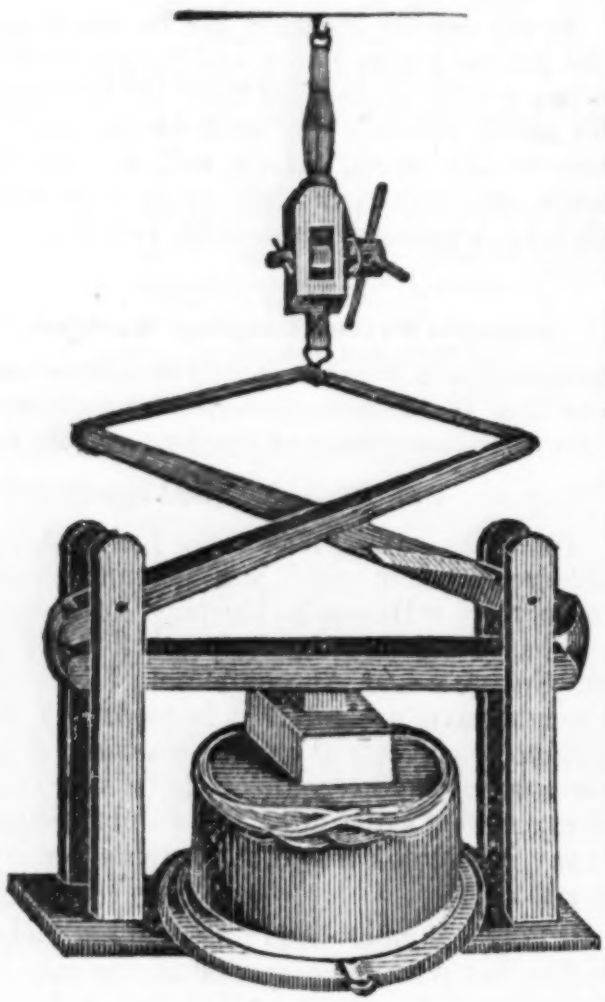

Fig. 21.

The cheese press has undergone almost as many modifications as the churn and washing machine. The several mechanical powers have been combined in almost every shape in which human ingenuity could devise, in order to procure a sufficient *squeeze*. The screw, the lever, wheel and axle, inclined plane and wedge, we have seen, all put into requisition in order to bring about the required pressure with the greatest ease and despatch, and the most of them seem to be made on the principle that a great pressure is necessary to press a little curd. Now we suppose that the pressure should be uniform and steady, and as the whey comes out, and the curd becomes more solid, it should still keep up sufficient pressure to continue force enough to cause a flow of the remaining portions, and consolidate the curd to a proper hardness. This is effected in a very simple and neat manner by the Self-Acting Cheese Press, a representation of which is given above, and which is manufactured by some of the Shakers in different states.

It is constructed on the principle of the *knuckle* or *togle* joint—a species of compound lever. The cheese itself is the pressing power. It is the *Pressor* and the *Pressee*, and of course the pressure is regulated by the weight. We have never used one, but are informed by those who have, that they are very good for the purpose intended.—*Maine Farmer.*

The Self-Acting Cheese Press may be had at the Agricultural Ware House, No. 87 North Second street, Philadelphia.

Domestic Economy.

Potash and soda are the two common and abundant alkalies used in every family every day. The first in the form of soap, pearlash, salæratus, quick lye, salt petre, &c. The other in the form of common salt, (muriate of soda,) and sometimes in other combinations.

Lime and magnesia are called alkaline earths; the former is frequently put with ashes in leach tubs, where it absorbs the carbonic acid combined with the ashes or potash, and by that means gives it greater power in acting on the grease or oily matter used for the soap. It is more effectual than red hot horse shoes in keeping witches from the soap, and is more certain than either the new or full moon, in gratifying industrious housewives with "*good luck*," in this branch of domestic economy.

Acids and alkalies neutralize each other. Consequently, if an accident occurs from vinegar, sulphuric acid, (oil of vitriol,) nitric acid, (aqua fortis,) muriatic acid, (spirit of salt,) or any other acid, apply potash, soda, ammonia, quick lime, magnesia, or some alkali, or alkaline earth.

If an accident occurs from an alkali, apply vinegar or a weak solution of some of the stronger acids.

By a knowledge of the properties and the relations of the two classes of substances, constantly used by house-keepers, stains on garments can frequently be removed or prevented, cooking improved, and frequently life saved.

Oxygen is the vital portion of the atmosphere, and the agent which supports respiration, sustains combustion, produces rust on metals, changes the juice of the apple, first into sugar, then alcohol, then vinegar, and finally putrefaction; causes light and sour bread, darkens the shade of certain colors, and destroys others, and produces some influence on every thing at all times.—*Genesee Farmer.*

It is better to exercise the judgment, than to overload the memory.

Cattle Show & Horticultural Exhibition, New Castle County, Del.

The Cattle Show of the Agricultural Society of New Castle County, held in this city on Wednesday, September 25, as usual, attracted a large concourse of strangers, from different parts of this county, and the adjacent counties of Pennsylvania; and the cattle, sheep, hogs, &c. exhibited, did great credit to the agriculturists of the county. A great number of pens had previously been erected for the accommodation of stock, and they were nearly all filled on the morning of the exhibition with a variety of very fine cattle, &c., some of which were brought a distance of nearly twenty miles. The agriculturists of this county and state for some years past, have been much engaged in improving their stock, and for this purpose several valuable European breeds have been purchased at very high prices, and introduced into the state; and the advantages that have already arisen and will continue to arise to the farmers and agriculturists, is now being more and more developed at every succeeding exhibition of the society. Some of the young cattle of foreign blood exhibited on this occasion, we do not imagine would lose by a comparison with any other in the Union; and in the course of a few years more, should as many improvements be made, as in the last four or five, we shall, no doubt, be able to boast of as fine cattle as those of any other quarter of the globe. We presume the society will in a few days publish a detailed account of the exhibition, particularizing the different kinds of stock, by whom raised, the premiums awarded, &c., and we do not, therefore, deem it necessary to give a full description at present, further than to say that the most sanguine anticipations of the members of the society, as well as all others who witnessed it, were fully realized.

The Horticultural Exhibition in the City Hall, on the same day, was also very numerously attended by our citizens, and a large number of strangers, some of whom came a considerable distance to witness it; and for the beauty of arrangement, and brilliancy of design, exceeded any thing of the kind ever produced in this city before. The richest and most delicious products of nature, such as melons, peaches, pears, apples, grapes, and, in fact, all descriptions of "fruit empurpled deep," and vegetables,—were spread around in great profusion, and in the most delectable style. The gorgeous display of flowers of every hue, and of most delightful fragrance, interspersed with evergreens, and formed into wreaths, harps, chandeliers, and other fanciful figures, lined the ceiling, walls, pillars, windows, &c., of the large room in which they were exhibited, giving to the whole scene a most brilliant and imposing effect; and resembling a magnificent banquet, prepared by lavish Nature's well directed hand. Many productions of art, and a great variety of silks, both raw and manufactured, were likewise exhibited. One of Brooks' Spinning Machines was kept in operation nearly the whole time, which attracted considerable attention; and must have convinced all that the silk business is destined at no very distant day, to become one of our principal branches of industry, and which is to add greatly to our already numerous sources of wealth. A large number of ladies were in attendance, and they appeared to enjoy the scene with no small degree of pleasure and delight.

About three o'clock in the afternoon, the Agricultural Society, consisting of near one hundred members and invited guests, sat down to a most delicious dinner, prepared by Mr. Brooke T. Turner, of the Bayard Hotel, which was served up in the Council Chamber of the City Hall. The table was furnished with the choicest description of meats, vegetables, pies, tarts, &c., prepared in the best style, and with the greatest abundance, which did the worthy host no small degree of credit, and showed that he was every way qualified to cater on such an occasion, and satisfy the most fastidious taste—at least so we should judge from the manner in which the company seemed to relish every thing with which the table was lined. After the cloth was removed, several very appropriate addresses were delivered by the members, in which they stated their views and experience upon subjects of interest to the society, and several excellent toasts were drank—and after thus enjoying themselves for an hour or two, the company retired, well pleased with the festivities of the day, and we doubt not, with a determination to renew their exertions in their noble and praiseworthy pursuits.—*Wilmington (Del.) Gazette.*

Chester and Delaware County Agricultural Exhibition.

An unusual degree of interest was excited in our borough the past week, by the Exhibition and Cattle Show of the Chester and Delaware County Agricultural Society, held on the premises of J. P. McClellan. This is but the second one since the formation of the society, and if the future ones are destined to exceed the recent one as much as this did the preceding, we may safely predict, that Chester county will soon rival the most favored sections of our country, in the number and quality of her improved breeds of cattle, sheep and hogs, as she now surpasses most in her fertile soil and luxuriant pasture. We counted no less than ten imported animals of the

Durham short horned breed, where, last year, there was but one or two exhibited. The two cows "Donna Maria" and "———," recently brought from England, by Messrs. Cope and Burton, were conspicuous for their fair proportions, and perfection in the valuable points, for which the Durham breed is so celebrated. "Victoria," a beautiful roan of Mr. Whitaker's importation, and owned by Geo. Brinton, was also much admired. Edward Gheen, Francis Strode, and our townsman Mr. A. Bolmar, also exhibited several cows and bulls of the pure Durham breed of native stock, highly creditable to their skill in breeding and enterprize. The very large number on the ground of more or less purity of blood, and obtained by judicious crossing of our native stock with the pure bloods, show that the spirit of improvement is abroad, and that our farmers are alive to its importance.

In the preceding account we have omitted to mention the superb cattle of Paschall Morris, of East Bradford, which were unsurpassed by any on the ground. To the best of our recollection, they consisted of a superior Durham bull, "His Grace," four Durham cows, a heifer and bull calf. The first took the premium, and probably some of the others —they being of noble blood, of fine symmetry and in most excellent order. They were unusually admired.

There were also some specimens of pure Devons, which, though smaller than the Durhams, are highly worthy of cultivation. Two cows, belonging to Abner Hoopes and John Hickman, were really beautiful.

In regard to oxen, Chester county ably maintained her reputation for possessing the largest and best working cattle. The magnificent brindles of Thomas S. Woodward, of East Bradford, and which, we have understood, obtained the first premium, did credit to the exhibition. They were of giant proportions, combined with perfect neatness and docility. These, and three or four pair, belonging to Joseph Jefferis, would have graced any exhibition in the country.

The Sheep and Swine were also ably represented. W. W. Barber and Davis Beaumont produced some of the pure Berkshires, a breed of hogs just coming into notice in Chester county, and promising to outdo all others, in regard to weight, form and early maturity.

Of Sheep, in addition to the pure Southdowns of Abner Hoopes, so well known here and abroad, for his great success in introducing this valuable breed, there was a very large collection of mixed breeds of various crosses, approximating, more or less, to the pure bloods Leicester and Southdowns, which, we are confident, could not be exceeded in any part of the country. It is pretty certain, that so far as regards fine sheep, the Chester and Delaware County Society, already takes the lead of any society in this vicinity. Messrs. John Worth, Joseph Cope, Bradley, Hannum, Gheen, Strode, Huddleson and Hickman showed pens of extraordinary beauty.

Of Horses, although the large display was mostly of the kind useful for draught and road service, it was very respectable, and seemed to indicate, that we are already in possession of as good a breed of horses, for agricultural purposes, as can be found in any other section of the country.

On the whole, we never knew an exhibition pass off with more eclat, or more clearly evince a high degree of agricultural enterprize and prosperity. If the society should do nothing more than merely collect together, at these annual exhibitions, the better kinds of stock already in the two counties, thus giving an opportunity of comparing and improving, it will be highly useful, and in a measure realize the expectations of those who originated it; but it is evident from this exhibition that our farmers are not going to stop there, and that so long as a better animal of any kind is to be found elsewhere, there are those who will not stop short of its acquisition.

In the afternoon an able and peculiarly appropriate address was delivered in the Court House by the President of the Society, John D. Steele, Esq., to an overflowing house, which we hope, will be furnished for publication. He alluded to the rapid improvements which had been introduced into the county, not only in regard to stock, but tillage and labor saving machinery, particularly the introduction of root culture, which will make quite an era in our agricultural history, and intimated that we have the foundation in our luxuriant soils and abundant pastures, for vieing with any other portion of the world, as we already surpass most in our system of cultivation.—*Village Record, Oct.* 22.

The following article is extracted from the Flemington (Hunterdon County, N. J.) Gazette.

To the Farmers of Hunterdon County.

The present is an age of improvement, in every department of arts, science and industry; and in no one branch is there more room for greater and permanent advances, than in the art of *agriculture.* That agriculture is an art, I presume no one will gainsay; and that it is one of the most ennobling, healthful, honorable, and lucrative professions, if well followed, is sufficiently clear. It is unfortunate for our country that agriculture for many years back was neglected; and a distaste for the most rational and delightful of all occupations, was thereby created, and thousands of our healthy and intelligent youths, were

annually sent to those seats of contamination, cities and large towns, to learn the arts, mysteries, and cares of mercantile life—while hundreds of others sought to be professional gentlemen. Hence the ranks of the physician and the lawyer, were not only filled, but presented an immense corpse in *reserve*.—The natural consequence is, that they lead out a life of sickly professional existence.—The truth of the matter is, we have ten times too many professional gentlemen. They cannot all have full employment: and I would most affectionately recommend to them, to return to their proper employment, that of tilling the soil. Old mother earth will receive her wandering and erring sons most kindly, and abundantly repay them for every effort they make to draw from her bosom all that is necessary to supply their wants, *provided* they in their turn are kind, replenishing the soil by the timely and judicious application of fertilizing manures; keeping it well pulverized, well attended to, free from weeds, and in good heart.

"A spot of ground," the Romans said, would afford sustenance to a family. *This is true.* The great fault with us, brother farmers, is, that we cultivate *too much land.*—It is a mistaken notion that a large farm is necessary. It is a prevailing error, and deters many a man from entering upon the cultivation of a *small* farm. So far from being necessary, a large farm, except under peculiar circumstances, is not even desirable.

Too little attention has been paid by the farmers of this state to the improvement of our agriculture. Here and there, it is true, are a few noble exceptions. We need more light and knowledge on the subject—our prosperity requires a systematic course; a free interchange of opinions, and practice of farmers. I was therefore rejoiced to see the effort of our Princeton friends to form an Agricultural Society. This is right. It is an example worthy the immediate imitation of Old Hunterdon. The benefits resulting from societies of this nature, when organized on correct principles, and properly managed, are almost incalculable. I hope to see my brother farmers moving in this matter. Shall Old Hunterdon, ever kind to her industrious and persevering children, have an Agricultural Society! What say you, brother farmers! Who will respond—who will take the lead—when and where shall we meet!

I am aware that many are opposed to *innovations;* they set their faces against agricultural newspapers, repudiate book farming, and utterly discard all improved implements of culture. This is not right. Those who entertain these sentiments fight strongly against their own interest. I am free to confess that I was once set against theory, and against book farming; but since I became a subscriber and reader to the Philadelphia Farmers' Cabinet, my views have not only changed, but the aspect of my spot of ground has also changed, and that greatly for the better. Though I do not approve of *all* contained in that publication, I must, in candor to the editor and his able correspondents, say, that I have derived great benefit from it, and it affords me much pleasure to bear this public testimonial to its favor, as I find it is the sentiment entertained by very many practical and intelligent farmers.

I have adopted the *new* system of ploughing, as it is called, as the best ploughing is that, in my opinion, which completely subverts the soil, and buries beneath it the entire vegetable growth. The advantages of this are many and great, and if you see fit, Mr. Editor, to print what I have already written, I may trouble you more on this point, and perhaps say something on "Agricultural Implements" in general. In conversation with a farmer from Pennsylvania, a few days since, he informed me that they have introduced in that State, a new implement for planting Corn, Sugar Beet, Ruta Baga, Mangle Wurtzel, Turneps, Peas, Beans, &c. I had seen this machine figured in the Farmers' Cabinet, and read the account. I thought it so extravagant that I would not touch it. But the gentleman to whom I refer, and in whose veracity I have implicit confidence, states, that after the ground was prepared, he took this machine and planted eight acres of corn, and one acre of sugar beet and ruta baga, in ten hours. The machine lays out the furrow, drops the seed in the fresh earth; it is immediately covered and sufficiently rolled, all by one operation. My friend states that his corn and beets have come up finely, regularly, and from two to three days earlier than those sown by hand. This he thinks is owing to the seed being dropped in the fresh earth, and immediately covered. Price $15, I think he stated. He made his purchase in Philadelphia.

AGRICOLA.

Hunterdon, July 12, 1839.

Choice of a Profession.

It has frequently occurred to us that our young men, on completing their studies in our colleges, mistake the road to usefulness and comfort in preferring the study of some *fashionable* profession to the pursuits and occupations of rural life. As soon as a young gentleman is admitted to the degree of Bachelor of Arts, his thoughts are turned on the future, and perhaps the first resting place they find is upon the acquirement of professional knowledge of some kind, which to him seems the only road to wealth or distinction. Thus

we see the science of agriculture neglected by those who *are* capable of investigating it as they should be; and every possible inducement to engage in the improvement of the soil, and to assist nature in what she is wont to do for man, is but a feather in the scale of reasoning. And through fear of adopting some pursuit that is attended with a little *labor*, and as some call it *drudgery* (but which is the greatest conducive to good health) resort is had to the study of some *profession*—which has done and we fear is doing great injury to our country. We wage no war against professions of any kind; on the contrary, they are indispensable, but it is a fact that it is considered an *unpopular* step nowadays for a young man on completing his academic studies to devote his time and talents, if he possess any, to the advancement of the cause of agriculture.

We have before us an address, delivered before the young gentlemen admitted to the degree of Bachelor of Arts, at the first commencement of the University of Nashville, by its venerable President, Dr. Philip Lindsey—which deserves to be more extensively circulated than we fear it has been—and from which we make the following extract—and shall give more of it in future.—*Southern Cultivator.*

"I know not what are to be your future professions or occupations. Every honest calling ought to be esteemed honorable. I address you as moral and intellectual beings—as the patriot citizens of a great republic.—You may be merchants, mechanics, farmers, manufacturers—and yet be eminently distinguished and eminently useful, if you will persevere in seeking after knowledge and making a proper use of it. The Medici—Necker—Ricardo—were merchants or bankers: Franklin was a mechanic; Washington was a farmer. By far the greater part of our countrymen are and must be farmers. They must be educated; or, what is the same thing, educated men must become farmers, if they would maintain their just influence and ascendency in the state. I cannot wish for the alumni of Cumberland College, a more healthful, independent, useful, virtuous, honorable, patriotic employment, than that of agriculture. Nor is there any condition in life more favorable to the calm pursuits of science, philosophy and religion; and to all that previous training which ultimately constitutes wisdom and inflexible integrity. Should our college eventually become the grand nursery of intelligent, virtuous farmers, I shall esteem it the most highly favored institution in our country. I have long thought that our college graduates often mistake their true path to honor and usefulness, in making choice of a learned profession, instead of converting agriculture into a learned profession, as it ought to be, and thereby obtaining an honest livelihood in the tranquil shades of the country."

Vegetable or Root Cutter.

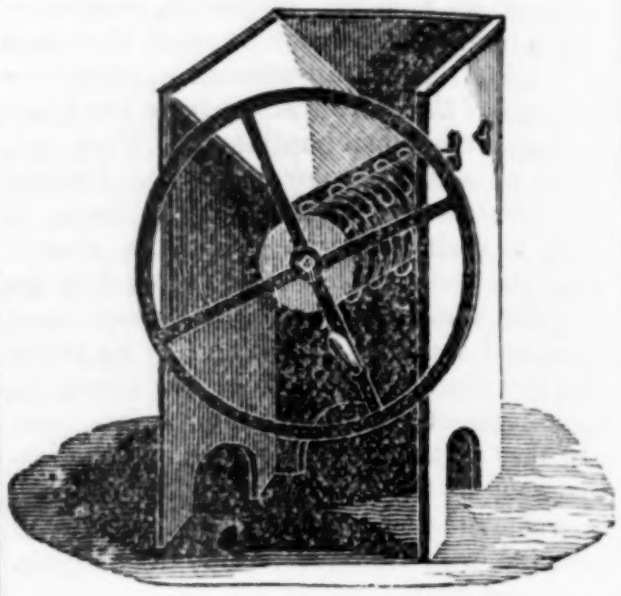

Fig. 22.

Willis' Improved Vegetable Cutter for cutting large or small roots. The great objection to all other machines is, their cutting the roots into slices, which makes it almost impossible for the cattle to get hold of them; this machine, with a little alteration, cuts them into large or small pieces, of such shape as is most convenient for the cattle to eat. It will cut with ease from one to two bushels of roots per minute. No farmer should be without one of these machines. The importance of the root culture in this country is now fully established—the experience of the last three years in the *raising* of the sugar beet, ruta baga, &c., and their peculiar excellence as winter food for cattle, is conclusive. The result has more than realized the sanguine wishes of the most jealous advocates of root culture. The sugar beet appears, now, to be the general favorite—but the ruta baga is not far behind. It should be remembered that a change, even of succulent food, is not only beneficial, but necessary—the judicious farmer will not therefore cultivate one member of the root family to the exclusion of all the others. His main crop may be sugar beet, or ruta baga, with a suitable proportion of turneps, carrots, mangle wurtzel, potatoes, &c. These roots all contain, as is well known, a large proportion of saccharine matter; and, if carefully preserved from the effects of cold and frost, they will retain their native juices throughout the winter, and even in spring (if well preserved) they are found to be a most efficacious substitute for green crops of grass. The advantages of the root crop to the farmer are too apparent to require any notice—but we wish to call their attention to the machine

figured above, for preparing roots for cattle. Simple in its construction, it is not liable to get out of repair, is well built, and offered at a moderate price. It may be seen at No. 87 North Second street, Philadelphia.

Cost of raising Sugar Beets and other Roots.

In examining an estimate of the expenses of making beet sugar in this country, many farmers will consider that the expense of raising the roots is reckoned too low; this is owing to the little attention that has been paid to root crops; and to farmers in general not being acquainted with the best and most economical method of culture, and not having machines and implements to enable them to manage the growing of root crops to advantage.

These unfavorable opinions will in a measure continue, till root culture is more in practice; for though cases are stated of crops raised at a small expense, they will be regarded as extraordinary cases, and estimates made on paper, in which no error can be pointed out, will be looked upon as something uncertain; yet these favorable accounts will lead the enterprising and intelligent to try and see whether these things are so, and although their expectations may not always be realized, yet they will find a great advantage in attending to root culture, and be led to inquire into the most frugal method of pursuing it. Farmers who dig up a small patch and sow it in beets, and do not weed it till there are five hundred weeds to one plant, may find that the cost of raising a bushel of beets is one dollar, when with prudential management in raising on a large scale, ten or twelve bushels could be raised with this expense.

In raising beets and some other crops in a garden, we have managed to do the weeding before sowing, and find that it is a great saving of labor; that is, pursue that manner of culture that will destroy the weeds before the seed is sown; and the same plan may be followed in field culture, and even to greater advantage, as most of the labor can be done by animal labor, which is much cheaper than manual labor in this country, and this, as has been observed in the articles lately published on the subject, will enable us to raise beets as cheap as they are raised in France.

Our method has been to put on the manure and stir up the ground in the fall or early in the spring—the former is preferable, as the frost will loosen the soil and make it mellow, and the weeds will start in the spring before the soil is dry enough to work; when the weeds were well started, we worked the ground over again. About the 20th of May the ground was well worked over, and the seed sown, after being soaked, so that it would come up in a short time; the plants were up and large enough to hoe when scarcely any weeds appeared, the hoeing was done in a short time, the soil being very light and mellow, and there was but little trouble on account of weeds through the season, they having been mostly destroyed before sowing. If this plan should be pursued in field culture, it would save nearly one-half of the expense.—One hour's work with a horse and cultivator in stirring the ground and destroying weeds before sowing, would save several days in hoeing.

The following method of culture for a field crop, would be very economical as to weeding, which seems to be the most expensive part of cultivation. A piece of land, a deep mellow soil, that has been well manured and planted one year in corn or potatoes, would be in good condition for a beet crop. If it has been ploughed more than one year, there would be danger from the grub worm, which we believe is the principal injury from insects to which the sugar beet is liable.

A piece should be selected that can be ploughed deep, and the stones, if any, removed. If there has not been sufficient manure applied to the previous crop, apply the manure and plough the ground very deep in the fall; if it cannot be done at this season, then as early as possible in the spring. When the weeds have started, go over it with a cultivator, and in a few weeks go over it again in the same way; this will loosen and pulverize the soil and destroy the weeds. From the 20th of May to the 1st of June, let the earth be thoroughly stirred with a cultivator, or, if the soil be not very loose it may be well to plough it again, then go over it with a light harrow to make the surface level and smooth, and the soil fine: be ready to sow as soon as the ground is prepared, while the surface is moist, and that the plants may get the start of the weeds. Pour water as hot as can be borne by the hand on the seed, and let it soak a day and a half or two days, then it will vegetate and be up, and the plants will be large enough to hoe before the few weeds that are liable to grow, get up so as to be much trouble.

Sow the seed with a machine and the expense will be light. Let the rows be from two to two and a half feet apart, then a light cultivator may be used between the rows; in thinning the plants let them stand about one foot apart. If any places are vacant from the seed not growing or the grub worms eating them, the deficiency may be supplied by transplanting; though transplanted beets do not form so handsome a root, yet they yield about as much as the other. The expense for weeding and loosening the soil will not be great. In harvesting, if the beets cannot be pulled easily, a furrow may be ploughed near

each row with a horse plough, then they may be pulled with little labor. By this, or some better way if it can be devised, beets may be raised at a small expense, and as lands and animal labor are cheaper here than in France, and as much labor can be done here by animals which is performed there by the hands, we think our advantages are equal to those of France in the cheapness of manual labor.—But supposing our advantages in raising the beets are not equal as to a cheap production, we have reckoned the expense higher in the calculation we have published, so as to conform to a fair estimate on all expense. Instead of three dollars and twenty cents per ton as in France, we have reckoned at five dollars per ton. No calculation on the expense of raising beets or other crops can be made exactly suited to all parts of the country, as the prices of labor and land are different. Near cities and large towns, and near the sea-board, owing to good advantages for markets, and communications, lands are higher, and the rent of them more, of course, than in the interior; in such cases labor too is usually somewhat higher.

Estimated expense of an acre of Sugar Beets.

Use of an acre of land well prepared for beets, and manured, or managed in the previous crop,	$12 00
Ploughing,	4 00
Cultivator-*ing*, horse, cultivator and hand, two hours,	50
Twice more before sowing,	1 00
Harrowing,	50
Seed $2 25, sowing with a machine 75,	3 00
First hoeing,	4 00
Second hoeing, thinning, and transplanting to supply deficiencies,	4 00
Hoeing again, and loosening the ground with machines,	2 00
Harvesting,	9 00
	$40 00

Make the rows two feet four inches apart, and then a cultivator can be used in hoeing. If the beets stand one foot apart in the rows, and weigh two and a quarter pounds each, the yield will be twenty tons. In rich ground at that distance, a great number will weigh four or five pounds each; twenty tons is a good crop, but not extremely large, for in some cases twenty-five or thirty tons to the acre have been raised in this country. At the above expense of forty dollars to the acre with a yield of twenty tons, the cost would be two dollars per ton. We make this estimate, to show how cheap beets may be raised under favorable circumstances, such as good land at a fair price, convenient machinery and implements, and the most prudential management in the culture, with labor at a moderate price, and a favorable season. We have no doubt that in some parts of New England, beets could be produced in great abundance at the above price; but we must not always expect a combination of favorable circumstances.

Supposing we reckon the produce only two-thirds as much as above, say thirteen and two-third tons, and the cost thirty-two and a half per cent. more, which will be fifty-three dollars and thirty-three cents; then the cost of the beets will be only four dollars per ton, one-fifth less than Mr. Bosson reckoned in his calculation on the cost of beet sugar. If we reckon fifty pounds to the bushel, thirteen and a half tons per acre would be only five hundred and thirty-three bushels, which would be no more than a middling crop; not half as much as has been raised in a number of cases that have been named.—*Yankee Farmer.*

A Hint.

A soil may be forced, by extreme care, enormous expense, and the use of manure without measure, to produce all sorts of crops; but it is not in such sort of proceedings that the science of agriculture consists. Agriculture ought not to be considered as an object of luxury, and whenever the produce of agricultural management does not amply repay the care and expense bestowed upon it, the system followed is bad. A good agriculturist, will, in the first place, make himself acquainted with the nature of the soil, in order to know the kind of plants to which it is best adapted; this knowledge may be easily acquired by an acquaintance with the species of the plants produced upon it spontaneously, or by experiments made upon the land, or upon analogous soils in the neighborhood.

Rhubarb.

This excellent plant, which should have a place in every garden, is very easily raised, requiring nothing more than a rich loamy situation. It is an orchard in miniature, the stems of its leaves affording a substance which is an excellent substitute for apples, to make sauce or pies. The sauce made from it, is very wholesome and palatable, and will be a good preventive of bowel complaints. It is said that by stewing it with sugar and preparing it in the same manner as for the table, it may be bottled and corked up tight and preserved for winter. Indeed, we do not see why it may not be kept as long as apple sauce, or any of the berries that are preserved in this way without being bottled up. Some of our good housewives had better try the experiment.—*Maine Farmer.*

The law compels no one to do a benefit, nor permits him to do an injury for nothing.

A good maxim is never out of season.

A bitter jest is the poison of friendship.

Willis' Improved Double Operating Corn Sheller.

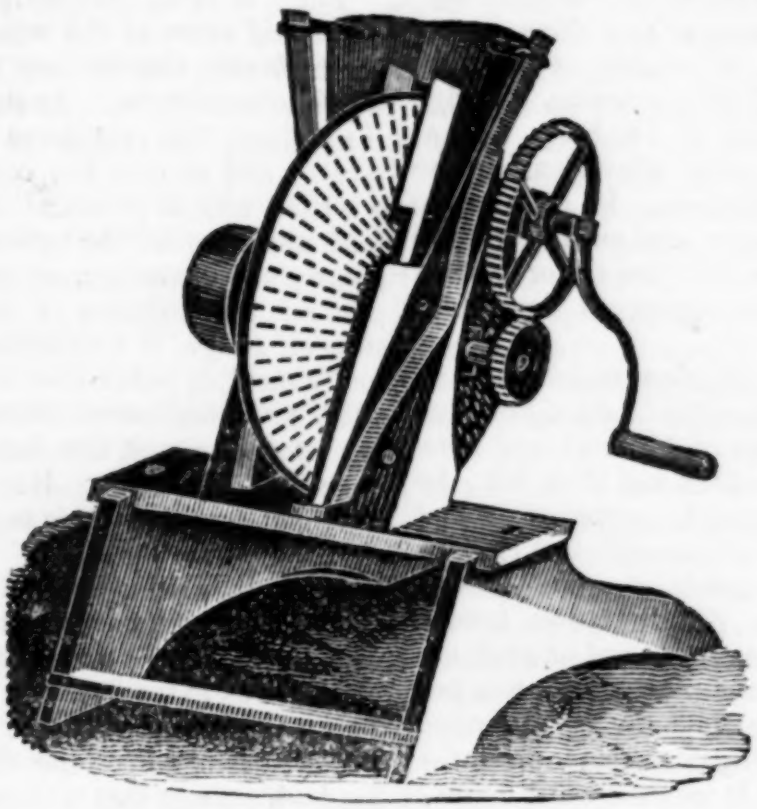

Fig. 23.

The Improved Double Operating Corn Sheller will shell two ears of corn at the same time, can be worked by hand or any other power—is very durable and not likely to get out of order, and is one of the most convenient and labor saving machines used by farmers. Every practical farmer, who raises any quantity of corn, should own a good corn sheller, as it is one of the most convenient and labor saving implements that he can use. The advantages are almost incredible; and we are persuaded that no person who has seen this machine in operation, and it is said to be one of the very best in use, would be willing to pursue any longer the old system of shelling by means of the shovel, the tub and the bodkin—an unsatisfactory and tedious process, resorted to principally in rainy days. This instrument, put into rapid motion, will perform more in the way of shelling corn in one day, than will be accomplished during a whole month of "*storms without* and of *storms within*, unless boys are more industrious than some we knew when we belonged to that class." The price is no objection—but if it be deemed too high for the quantity of corn raised on small farms, two or three neighbors might unite in the purchase—as they are portable, and easily removed from one place to another. There are a variety of corn shellers, of different construction, capacity, and prices. We would not be understood as recommending a joint purchase by farmers of a neighborhood, of improved implements, as a general thing. Exclusive ownership is best—yet there are cases in which this rule may with great propriety be departed from—for instance in a neighborhood composed of small farms,—which by the way generally rank high in the scale of fertility,—several neighbors may unite in the purchase of Hussey's Reaping and Mowing Machine, or any other of great importance, the price of which is too high for the proprietor of a small plantation. The corn sheller, however, does not belong to this class.

Fruit Ladder.

A gentleman in Maine recommends the following ladder, or frame, for gathering apples, &c. It consists of two upright posts, from seven to ten feet long, (more or less at the option of the constructor,) inclining towards each other, about four feet apart at the bottom, and one foot at the top. The rounds of the ladder pass through these posts, and are about a foot apart. They are made somewhat larger in the middle than at the places where they are inserted into the posts, to give greater strength to the machine. A third post is added to these, through which the top round of the ladder passes, permitting the post last mentioned to turn thereon, so that its lower end may be set at a greater or less distance from the other two posts, or rather from a straight line drawn between them. This ladder may be made light and portable, and possesses the advantage of supporting itself without leaning on any other object.

Robert Burns, the poet, was a ploughman.

DEATH OF JUDGE BUEL.

[From the Albany Argus, Oct. 9.]

We discharge a melancholy office in announcing the death of another of our most respectable and valuable citizens. Judge JESSE BUEL expired at Danbury, Ct., at three o'clock on Sunday afternoon, in the sixty-third year of his age. In consonance with the general sorrow, and as a tribute to the character of the first proprietor of this journal, our columns appear in the habiliments of mourning.

Having accepted invitations to deliver anniversary addresses before the Horticultural and Agricultural Societies of Norwich and New Haven, Conn., on the 26th and 27th ult., he left home about a fortnight since, with that view. At Danbury, he was seized on Sunday night with a bilious cholic, of which he was relieved in the course of twenty-four hours; but bilious fever supervened, and he sank under it, after an illness of more than a week—receiving, during the time, every attention, and unremitted medical attendance from the hands of strangers. It was not until Friday last, however, soon after his son had left him on his return to Albany, to request the attendance of his family physician, that the disorder assumed an alarming aspect. He was accompanied on his journey by his only daughter, of whom he took an affecting and final leave, in the full possession of his mental faculties, a few moments before he calmly breathed his last.

Intelligence was brought yesterday morning by express, announcing the expected fatal termination of his illness. It was a melancholy surprise to his anxious family on reaching the steamboat wharf in the afternoon, on their route to his place of illness, to be among the first to learn that his remains had been brought up by the Columbus, the day boat from New-York, which arrived before the departure of the afternoon boat. The body had been brought from Danbury to Poughkeepsie, and thence to this city.

For the last thirty years, Judge Buel has occupied a wide space in the political and agricultural world. In 1813, he removed to this city from Ulster county, and established the Albany Argus. In the following year, he was appointed Printer to the State, and discharged the duties of that station, and of the editorship of the paper, until 1821, when he retired to the farm in the suburbs of the city, since so widely and favorably known as the "Albany Nursery." After his retirement from his editorial labors, he represented the city for successive years in the popular branch of the legislature, and at the period of his death was a Regent of the University. His last appearance in political life was as the gubernatorial candidate of the opponents of the national administration in 1836.

But it is as an Agriculturist, in the great and broad sense of the word, practically and scientifically, that he has built his fame as a public benefactor. As such, he was known throughout this continent and in the old world; and no man has contributed more, as a writer, and in practical life, to elevate, inform and improve the agriculture of his age. Nearly six years ago, as an auxiliary in his plan for the diffusion of knowledge on this subject, Judge B. established "The Cultivator," a monthly publication of the highest value, and of great and varied information, and which has attained a vast circulation throughout the American continent. His labors, however, were not confined to his monthly publication, ample as were its pages. His pen was in constant requisition upon nearly every subject connected with the cultivation of the soil, and his correspondence throughout the Union, and abroad, was extensive. In example, not less than in precept, he may be said to have conferred blessings upon the times in which he lived—blessings that will continue to fructify, and ripen into fruit, long after his body shall have mingled with his favorite earth.

As a neighbor and a citizen—and in all the relations of domestic life—he was without reproach. He was esteemed not less for his integrity than his intelligence and worth.—for the unaffected affability and simplicity of manner in his intercourse with his fellow men. He may be said to have lived for utility; and to have died in the prosecution of his favorite employment. His death is a public bereavement, which all will mourn, as irreparable.

Within the last two years, society at large—and the farming community in particular, have sustained a serious loss in the death of two of the most eminent conductors of the agricultural press—Judge Emerson,* of Jonesboro, Tenn., Editor of the Tennessee Farmer, and Thomas G. Fessenden, of the New England Farmer. These gentlemen had devoted themselves zealously to promoting, by means of the press, the great and important interests of agriculture; and by persevering efforts had overcome many obstacles, and were encouraged by the flattering prospects before

*Judge Emerson, we believe, established the first agricultural newspaper in Tennessee, and continued it until his death, in the face of great discouragement, and at great personal sacrifice; and if we mistake not, so important did he consider the dissemination of light and knowledge on the subject of agriculture, to the prosperity of East Tennessee, that he made provision in his will for continuing the paper he had established, and which he had conducted for some time with marked ability.

them, of future usefulness, when they were arrested by the hand of death. And now, another is added to the list! In the death of JUDGE BUEL, the agricultural community, as well as society at large, has sustained a severe loss. No single individual in this country, probably, has done more within the last twenty years, to promote the cause of agriculture.—His influence will long be felt. Well may it be said, "Death loves a shining mark."

THE AGRICULTURAL EXHIBITION

OF THE PHILADELPHIA SOCIETY FOR PROMOTING AGRICULTURE,

Was held at the Rising Sun Tavern, according to appointment. Being confined by indisposition we were not able to attend.—The Exhibition, we learn, was well attended—five or six thousand farmers from the surrounding country being present. The following are the Reports of the several Committees:

The Annual Exhibition and Sale of the Philadelphia Society for Promoting Agriculture, was held at the Rising Sun Village, on Tuesday and Wednesday, the 22d and 23d of October, when a large number of superior stock was brought forward from Philadelphia, Montgomery, Chester, Delaware, and other counties.

They demonstrated, in a most gratifying manner, the interest which our exhibitions are exciting, and in connection with the recent fine display at the Chester and Delaware and other agricultural shows, evince a striking and rapid improvement in the breeding of live stock in eastern Pennsylvania.

The *Committee of Arrangements* refer to the subjoined reports of the judges, for more particular descriptions of the animals, &c., exhibited.

The weather was remarkably favorable, and the quiet and orderly demeanor of so large an assemblage for two consecutive days, was a source of gratification. We have only to regret the want of proper and ample accommodations for live stock, and anxiously hope that before another year, the means will be placed within the society to erect such sheds and other conveniences as shall fully satisfy the wants of contributors.

The representatives of the people will, we trust, see the propriety of some appropriation or provision for the immediate benefit of the *farmer*, whose interest is too frequently overlooked in our legislative halls.

The Sale embraced a few Durhams of mixed breed or doubtful pedigree, but consisted chiefly of dairy cattle of various quality; the owners of high bred and perfect animals, wisely retaining them for the increase of their own stock. Considerable spirit was manifested by the bidders, and very fair prices obtained.

Periodical sales so common in Europe and particularly in Great Britain, are of great advantage and convenience to the farmer and grazier.

The society feels encouraged by the success of the two annual sales already held, to continue them at future exhibitions, if sustained by the community.

KENDERTON SMITH,
Chairman of Com. of Arrangement.

ALEN. S. ROBERTS, *Sec'ry.*

Report of the Committee on Horses.

The committee of judges on Horses, being confined by the published rules of the society, to such animals as are best adapted to general use on the farm and road, in conformity thereto award the premiums as follows:—

1st. For the best stud horse, to William W. Barber, Chester county, for *Boston Bellfounder*, ten dollars.

2d. For the second best stud horse, to Mr. Price, of Delaware county, for *Bellfounder Junior*, six dollars.

3d. For the third best stud horse, to James Brown, Philadelphia county, for *Talma*, four dollars.

4th. For the best brood mare, to George W. Roberts, Montgomery county, for his *Bay Doll*, ten dollars.

5th. For the second best brood mare, to Franklin Comly, Philadelphia county, for his *Black Mare*, six dollars.

6th. For the third best brood mare, to Robert Potter, of Philadelphia county, for *Sally Miller*, four dollars.

7th. For the best colt, between two and three years old, to George W. Roberts, for his sorrel colt *Sheridan*, two years old, by Busirus, out of Bay Doll, six dollars.

8th. For the second best do. do., to G. W. Roberts, for his sorrel colt *Garrick*, two years old, by Busirus, out of a Messenger mare, four dollars.

9th. For the best colt under two years old, to Mr. Barney, for his *Chocolate Colt*, one year old, by Busirus, five dollars.

10th. For the second best colt under two years old, to F. Comly, for his *Bay Colt*, by American Perry, out of his Black mare, three dollars.

The society was particularly gratified by the display of a powerful stud horse and mare imported from Normandy, by E. Harris, Esq., of Moorestown, N. J. There were also a number of remarkably fine animals beside

those receiving premiums, among which were the horses Washington, Rob Roy, Andrew Jackson, and several others, worthy of commendation.

Geo. M'Clellan,
Evan G. Lester,
Josiah Walton,
Thomas Hart,
Owen Sheriden.

Philadelphia Co., Oct. 22d, 1839.

Committee on Cattle over two years old.

The Committee appointed to examine, and award premiums as offered for certain neat cattle over two years old, after a careful examination of the many fine animals of high pedigree, and almost faultless form, offered for their inspection, do respectfully report:

That they award the first premium for the best imported Durham bull, to Mr. Dennis Kelly, of Montgomery county, for his bull *Prince of Wales*, three years old, ten dollars.

To Mr. Paschal Morris, of Chester county, the second premium for his imported Durham bull *His Grace*, of two years old, five dollars.

For the best native bull of other breed, they award to Mr. H. Yerkes the first premium for his white bull *Montgomery*, ten dollars.

For the best imported Durham cow, to Mr. James Gowen, of Philadelphia county, for his cow *Dairy Maid*, of four years old, the first premium, ten dollars.

For the second best imported Durham cow, to Mr. Charles J. Wolbert, for his cow *Nell*, the premium of five dollars.

For the best native Durham cow, to Mr. C. J. Wolbert, for his cow *Flora*, the first premium of ten dollars.

To Mr. Paschal Morris, for his native Durham cow *Alice*, the second premium, five dollars.

For the best native cow of other breed, to Mr. Dennis Kelly, for his cow *Kate Karney*, the first premium, ten dollars.

For the second best native cow of other breed, to Mr. John Passmore, of Philadelphia county, for his *Roan Cow*, the premium of five dollars.

For the best ox or steer raised in Pennsylvania, and fitted for slaughter, "reference being had to mode of feeding," the first premium is awarded to Mr. Isaac W. Roberts, for his *Dunn Steer*, ten dollars.

For the second best steer as above, they award the premium to Mr. D. Hitner, for his *Yellow Steer*, five dollars.

For some of the premiums offered by the society, the committee regret to state that no cattle were exhibited—and in one or two instances there was but little competition, and the animals offered, though good, were not thought to be fairly entitled to premiums.—Some others had taken the first premiums at the exhibition last year, and by the rule of the society could not be offered again. Among these, the committee would mention Mr. C. J. Wolbert's splendid and unrivalled imported Durham bull *Colostra*; Dr. Uhler's large and beautiful imported Durham cow *Cato*, and Mr. I. W. Roberts' fine red Steer.

Next to those to which premiums were awarded and as meriting the particular notice of the committee on account of their high blood and fine qualities, they would mention C. J. Wolbert's cows, Paschal Morris', Dr. Uhler's, and Thomas Rotch's—some of which came in close competition with those to whom premiums were awarded.

Two very fine cows of mixed blood were exhibited by Samuel Richards, Esq., showing evidence of deep milking, with good size and form. Other good specimens, the result of judicious crossing with improved breeds, were exhibited by the following gentlemen, viz: Richard Lardner, Esq., A. S. Roberts, Esq., R. T. Potts, Esq., K. Smith, Esq., Mr. Sidden, Mr. Samuel Cooper, and Mr. George Rose. Mr. G. W. Keith sent a specimen of the Guernsey breed of cattle—a very small cow with her calf; she showed evident signs of a good milker.

Two very fine Durham bulls were sent by gentlemen of New Jersey—*Ajax*, the property of P. Dickinson, Esq., and *Fitz Roslyn*, the property of Messrs. Tatum and Cooper—both very superior animals.

The high bred Durham bull *Emperor*, was exhibited by Mr. Durkee; also a fine Durham bull by J. P. Wetherill, Esq., and a bull of mixed blood by Mr. Shetzline.

The committee were much gratified with the appearance of the neat cattle, generally, and feel confident that with proper management in breeding, and more liberal feeding, that farmers may be readily supplied with the most profitable and beautiful stock of their own raising.

Aaron Clement,
Philip Raybold,
Isaac W. Roberts,
Benjamin Serril,
Henry Charley,
Committee.

Committee on Cattle under two years old.

The committee on cattle under two years old, having carefully examined those presented to their notice, report, That in their opinion the following animals are entitled to the premiums awarded, viz:

For the best Durham bull, between one and two years old, to Thomas Rotch, for his bull *Cæcil*, sixteen months old, the first premium of six dollars.

For the best bull "of other breed," between

one and two years old, to Kenderton Smith, for his bull *Hero*, the first premium of six dollars.

For the second do. to H. Helmbold, for his bull *Prince*, four dollars.

For the best Durham heifer, between one and two years old, to Charles J. Wolbert, for his heifer *Cinderella*, the first premium of six dollars.

For the second best do. to Dr. George Uhler, for his red heifer *Miss Merion*, four dollars.

For the best heifer of other breed, between one and two years, to Robert T. Potts, for his Devonshire heifer *Isabella*, the second premium of four dollars.

For the best Durham bull calf under one year old, to James Gowen, for his calf *Leander*, the first premium, five dollars.

For the second best do. to A. S. Roberts, for his bull calf *Marmion*, three dollars.

For the best of "other breed," to Samuel Richards, for his bull calf *Harrison*, the first premium, five dollars.

For the best Durham heifer, to C. J. Wolbert, for his calf *Modesty*, the first premium, five dollars.

For the best heifer of "other breed," to K. Smith, for his heifer *Dolly*, the second premium, three dollars.

The committee, after having gone through with the list of premiums, feel bound to remark, that they see in the rising "generation" a decided improvement, and think they perceive in the young stock exhibited here today, great encouragement to persevere in so good a cause—and that if properly attended to, we shall in the course of a few years, have stocks of very superior cattle. In addition to the foregoing, the committee would say that owing to the great competition they found in many instances, much difficulty in deciding on the various merits of the animals presented. Among some of the many contributors they would mention C. J. Wolbert, two elegant bull calves, each four months old; James Gowen, a beautiful heifer; R. P. Lardner, a very handsome heifer; also, Paschal Morris, Dr. G. Uhler, Robert T. Potts, and many other gentlemen, exhibited specimens of superior animals, for which they are entitled to the thanks of the society.

JAMES THORNTON,
THOMAS WALMSLEY,
DANIEL C. FREYTAG,
JOHN JUSTICE,
WILLIAM SERRILL.

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Report on Sheep and Swine.

The Committee on Sheep and Swine offer the following Report:

1. I. W. Roberts, of Montgomery county, showed a full bred Southdown Ewe four years old; one do. half blood, two years; two half blood yearlings, and five lambs; two full bred, one three-fourth do., one half do.—all of fine forms and in good order.

2. Isaac Newton, of Delaware county, one Southdown Buck three years old, large and fine form; a Ewe five years old of equal merit, and a broad-tail Buck, full breed. The history of the introduction of this last and valuable breed into Pennsylvania, is given in the memoirs of the Society, vol. ii.

3. Isaac W. Hollowell, of Montgomery county, a Ewe, large and well formed, and two lambs of the New Leicester or Bakewell breed.

4. Robert A. Parrish, of Philadelphia, two Southdown Bucks of fine forms and large sizes, from the stock of Sir Gerald Aylmer, near Dublin: the sire and dam imported by the owner (not offered for premium.)

5. Wm. Warner Roberts, of Montgomery county, a handsome Southdown Buck.

6. A. S. Roberts, of Philadelphia county, four Southdown Ewes.

SWINE—1. By William W. Barber, of Chester county, a Boar and Sow of the British Berkshire breed, five months old.

2. James Thornton, of Byberry, Philadelphia county, a Boar five and a half months old, and a sow of the same breed.

3. Mr. Pierce, of Mount-Airy, Philadelphia county, a mammoth sow and boar, and a sow with seven pigs in fine order.

4. Thomas Balt, of Philadelphia county, a Boar two years old.

5. Joseph Sides, of Philadelphia county, another fourteen months old.

6. Thomas Smirke, of Roxborough, Philadelphia county, a full bred Chinese Sow, eleven months old, with eight pigs seven weeks old; the latter in fine order.

The following premiums were awarded;—

SHEEP—1. To Isaac Newton, for the best Southdown Buck, four dollars.

2. To William Warner Roberts, for the second best, two dollars.

3. To A. S. Roberts, for four Southdown Ewes, five dollars.

SWINE—1. To William W. Barber, for the best Boar, five dollars.

2. To James Thornton, for the second best, three dollars.

3. To William W. Barber, for the best Sow, five dollars.

4. To James Thornton, for the second best, three dollars.

The forms of these animals are excellent, and their near approximation rendered it difficult for the committee to decide upon their superiority. Mr. Thornton's specimens were, on the whole, not deemed equal to their competitors in size, in proportion to their ages.—I. W. Roberts' fine sheep were excluded from

competition by reason of their not all being full bred Southdowns.

JAMES MEASE,
R. A. PARRISH,
JOSEPH CRAWFORD,
WILLIAM W. BARBER,
ISAAC ROBERTS.

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Report on Agricultural Implements, &c.

The Committee on Agricultural Implements, Report,—That their attention was chiefly directed to ploughs, there being no other implements exhibited worthy of consideration.

To Mr. Joseph Dickinson, Chestnut-Hill, Philadelphia county, they award a first premium of five dollars, for the best *Plough*.

To Mr. John Young, Warren county, New Jersey, a premium of three dollars, for the second best *Plough*.

To Mr. Wiley, of Chester county, Pa., a premium of three dollars, for his complete and handy *Revolving Plough*.

All which is respectfully submitted.

JAMES GOWEN,
DAVID COMFORT,
JOHN N. REEVE,
THOMAS WALMSLEY,
DANIEL RITTENHOUSE,
Committee.

October 22, 1839.

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In addition to the foregoing, there was exhibited, by James Gowen, Mount-Airy, Sugar Beet, Mangle Wurtzel, Field Carrot, and Sugar Parsnep—samples from half acres of each kind,—also, by the same, fine Italian Spring Wheat in head, sowed 6th of April, reaped the 23d of July.

By H. J. Helmbold, fine Sugar Beet.

By G. Fulton, superior Tuscany Wheat.

By do., Rappahannock White-Bearded Wheat.

By Kenderton Smith, Spring Barley, weighing fifty pounds to the bushel.

By Samuel E. Leech, very fine Ruta Baga.

By Isaac W. Roberts, two Sugar Beets, weighing, one nineteen pounds, the other twenty and a half pounds.

By S. Maupay, Maclura Aurantia, or Osage Apple, a thorn highly esteemed for hedge.

By J. R. Bowman, Merion, a mammoth Pumpkin.

By William Fisher, Chestnut Hill, a large do.

By Bartlet Crock, a very large Drumhead Cabbage, nineteen pounds weight.

Samuel Crager, near Rose-Hill, exhibited White Gourd Corn, the ears uncommonly large, and the grain in some of them deeply embedded.

James Gorden, of New-Hope, from the Lepanti Mill, Ingham creek, exhibited a sample of beautiful Buckwheat Meal, which, from the peculiar process of hulling and screening at this mill, gives to the flour a superior appearance.

John Young also exhibited a very fine Buckwheat Meal, from the mill of Cresman Cresman, Roxbury, Warren county, New-Jersey.

An account of the Sale, &c., on the second day, with further particulars regarding the proceedings of the Society, may be expected in our next.

The Editor of the Germantown Telegraph, who was present at the exhibition, says that it "was not on the whole, as extensive and complete as we could have desired; the live stock, however, were almost, generally speaking, of a very superior description, and attracted great and deserved attention. The crowd of spectators—many of whom were from a considerable distance—showed the interest which had been awakened on the subject, *in the right kind of people*.—Indeed, of the five or six thousand who attended on the first day, four-fifths of the number were constituted of the best and most intelligent farmers, in Philadelphia, Montgomery, Delaware, Chester, Lancaster, Bucks, and other counties, in this state, and in the states of Delaware and New-Jersey. From the fact, that these men have showed so strong an inclination to encourage this, the most accessible and valuable means of advancing the agricultural interests of the country, we have no fears but that the future Exhibitions of the Society, will be supported in a manner and to an extent, greatly exceeding the past, and comporting more fully with the intelligence of the community and the importance of the object.

Nothing would be more conducive to this result, than the publicity of the fact, that these exhibitions are to be annual; that the same place, which is the most eligible that could any where be selected—will be the permanent Exhibition Ground; and that every accommodation will be provided for live stock, and all other necessary arrangements made. We would also recommend to the Society what we consider a very important matter—the extension of the exhibition from one to two days. This addition would afford an opportunity to all desirous to attend, to be present; and thus attaching a still greater degree of interest, while it would add a character and solidity to the Exhibitions, that it is impossible for the brief period of a single day—especially if the weather be inclement—to impart."

A desire for admiration is the offspring of vanity.

For the Farmers' Cabinet.

Expenses and Proceeds of Crops.—No. I.

Mr. Editor,—I here send you some account of the proceeds of a farm of fifty-six acres, within reach of the Philadelphia market, together with the management of the same. There are five fields, of eight acres each, which form a five years rotation in the following order: 1—Corn, 2—Oats, 3—Wheat, 4 and 5—Grass. The remainder is divided into orchard, meadow, and truck ground. Each field is manured and limed whenever it is sown with wheat. The account for the year 1838, as near as I am able to make it out, stands thus—

Farm.

DR.

To 12 months labor, at $10,	$ 120 00
To 6 do. do.,	60 00
To interest on 56 acres at $100 per acre	336 00
To do. on $1000—value of stock, &c.,	60 00
To seed,	44 00
To 400 bushels of lime at 12½,	50 00
To 10 per cent. on $400 worth of implements, for wear and tear,	40 00
To 300 bushels of oats consumed,	135 00
To 16 loads of hay,	246 00
To 100 do. manure at $1 50,	150 00
To 200 bushels of ruta baga at 30 cts.,	60 00
To keep of 6 sheep, at $3 50,	21 00
	$ 1322 00

CR.

By 140 bushels of corn at 80 cts.,	$ 112 00
By 300 " oats at 45,	135 00
By 50 " potatoes at 80,	40 00
by 50 " beets at 30,	15 00
By 200 " ruta baga at 30,	60 00
By 100 " apples at 75,	75 00
By 8 " timothy seed at $3,	24 00
By 180 " wheat at $1 75,	315 00
By 16 dozen brooms at $2 50,	40 00
By 6 loads of clover hay at $12,	72 00
By 2 " rye grass at $15,	30 00
By 8 " timothy at $18,	144 00
By 8 cwt. of pork at $8,	64 00
By boiling corn,	50 00
By fruit and poultry,	50 00
By profit on 25 sheep,	25 00
By straw and stalks 30 loads at $5,	150 00
By Wool,	20 00
By 6 lambs at $3, and 6 calves at $4,	42 00
By increased value on 4 young oxen and one colt,	50 00
By wintering 4 horses, 12 weeks, at $1,	48 00
By profits from 6 cows 6 months,	72 00
	$ 1633 00
	1322 00
Balance, clear profit,	$ 311 00

I have here credited the farm with all its products—(whether sold or used in the family) at the prices which they could readily command at the time, and have made it debtor to all which were consumed by the operative part of the stock. I have placed the manure on this side as a counterpart to the stalks and straw, which are mostly eaten by dry cattle in the winter. I will now speak of the different main crops in the order in which they come, giving a synopsis of the mode of cultivation, and an account with each field, taken from a journal kept at the time.

First—Corn.—Seven acres, clay loam, with a gravelly subsoil, two years old sod, finished ploughing in twenty-one pace lands on the sixth of May, passed over it three times with a heavy harrow before the twelfth, once on the line of the furrows, and crossing them in each direction at an angle of forty-five degrees; marked out the rows with a sled (made for the purpose) four feet apart both ways—put five or six grains in a place, the first dressing ran the cultivator once in a row, one way; second and third twice in a row, crossing the previous dressing each time, the fourth and last dressing, threw a slight furrow to the corn with a plough, followed once in a row by the cultivator. It was thinned to four stalks in each hill; cut off at the ground, and put in shocks of thirty-six hills each in September, and husked in the field, and the stalks bound and hauled home in November—the account kept with this field is—

No. 1.

DR.

To ploughing, 4½ days at $2,	$ 9 00
To harrowing, 3 times,	3 00
To marking out,	2 00
To planting and seed,	2 50
To thinning,	1 00
To tending,	9 00
	$26 50

CR.

By 140 bushels of corn at 80 cents,	$ 112 00
Deduct expenses,	26 50
Balance,	$ 85 50

The corn turned off but twenty bushels per acre; it was a poor crop, owing to the extreme drought. It also received injury in thinning, as this was deferred until the stalks had taken too firm a hold of each other by the roots, to be separated without hurt to those which were intended to be left. I am however fully satisfied, that it is much the best plan, always to put in more seed than you desire plants, and thin out the supernumerary ones, rather than depend upon replanting, in case of partial failure.

Second—Oats.—Sandy loam, sloping to the south. April 12th, sowed oats—after corn—harrowed once before sowing, twice after and rolled,—two bushels of seed per acre, harvested about the 21st of July.

Account with No. 2.

DR.

To ploughing, 3 days at $2,	$ 6 00
To harrowing 3 times,	3 00
To rolling,	1 00
To 14 bushels of seed oats at 45 cents,	6 30
To sowing,	20
To harvesting,	12 00
	$ 28 50

CR.

By 300 bushels of oats at 45 cents,	$135 00
Deduct expenses	28 50
Balance,	$106 50

There were seven acres of this field occupied by the oats, which turned off forty-three bushels per acre. On strong soil, oats should be sown thin: on poor ground, thick. If allowed room they will spread and branch out on the former, the straw will be of much stronger growth, and less liable to lodge; the growth being light on the latter, unless sown thick, there will be waste of ground. Particular care should be taken to have this crop put in the mow in a dry state. The earlier it is cut, the more valuable will the straw be as fodder.

Third—Wheat.—Eight acres mostly clay loam. The last week of August, 1837, ploughed the oats stubble, and harrowed it twice, once across the furrows. During September, spread fifty bushels of oyster shell lime to the acre, and harrowed it in—hauled on one hundred and fifty ox-cart loads of short barn-yard manure, spread it evenly, and ploughed it under crosswise of the previous ploughing—harrowed once with the furrows previous to sowing. On the 5th of October, sowed one-half with the white bald wheat—and the other with the red chaff bearded—five pecks of seed per acre—harrowed twice, sown with timothy seed, and rolled after sowing. The spring of 1838 put on about half a bushel of clover seed, picked weeds from it June 9th, finished hauling in two hundred and forty dozen the 14th of July.

Account with No. 3.

DR.

To ploughing 8 days at $2,	$16 00
To harrowing 3 days at $2,	6 00
To 16 bushels of seed wheat at $2,	32 00
To rolling and sowing,	1 50
To 400 bushels of lime at 12½ cents,	50 00
To hauling do.,	12 00
To spreading do.,	4 00
To 150 loads of manure at $1,	150 00
To hauling and spreading do.,	20 00
To harvesting,	16 00
	$307 50

CR.

By 80 bushels of white wheat, at $1 75,	$140 00
By 100 do. red chaff do at do.,	175 00
	$315 00
Deduct expenses,	307 50
Balance,	$7 50

The four acres of white wheat turned off twenty bushels per acre, the growth of straw rather light, and grain somewhat shrivelled. The half sown with the red bearded produced twenty-five bushels to the acre, a large yield of straw, and grain plump. The whole field was partially affected by rust, and the part sown with white wheat received considerable injury from the Hessian fly, which seems to have a predilection for this variety, when allowed to choose between it and others, probably owing to the straw not being of so coarse a texture. I am led to believe that the application of the lime would have been productive of more beneficial consequences, especially to all succeeding crops, if it had been applied nearer the surface.

Fourth and Fifth.—No. 4 is a clay loam which lays low, and from its position cannot readily be drained. No. 5, a gravelly loam. Picked off all stones in the spring. Commenced mowing No. 4, mostly clover, June 29th. Mowed No. 5, of which timothy formed the greater proportion, July 9th. The general plan followed in gathering the hay, was to mow one day and let it lay in swath until the dew was off the next morning, then spread it, towards evening rake it up with a horse rake and put it in cocks; open these lightly the next morning, and haul in P. M.; but you must decide what course to pursue, from the condition of the grass, and the state of the weather. When this is unsettled it is often double the work, to secure the hay crop,—when this is the case, it is best not to have much grass down at a time, haul in any portion as it becomes fit, and salt it in the mow.

Account with Nos. 4 and 5.

DR.

To picking stones half a day,	$1 00
To getting in hay from No. 4,	9 00
do. do. No. 5,	11 00
	$21 00

CR.

By 6 loads of clover hay at $12,	$72 00
By 2 " rye grass hay at $15,	30 00
By 8 " timothy hay at $18,	144 00
	$246 00
Deduct expenses,	21 00
Balance,	$225 00

There are five acres of clover and one of rye grass, the latter was sown with turneps, the fall previous. After wheat, the clover yielded about one ton per acre, the rye grass two tons. In No. 5 there were six acres of timothy, which gave one and one-third tons per acre, there was but little second crop on either field, from the effects of the great drought—the same cause made the first crops much lighter than they would have otherwise been; where plaster was sown this year it was done to manifest advantage. Clover should be cut when in full bloom, timothy when the seed forms. Three acres of these fields were out of the course, owing to a change of fencing, and one acre of timothy was retained to be cradled for seed; with these I kept no account.

I have thus endeavored to lay before your readers, a succinct account of the leading points in the management of the principal

crops. I have not debited the corn crop to harvesting, nor either of the three grain crops to expense of preparing for market, the fodder and litter furnished by the stalks and straw will be sufficient to balance these; one acre of No. 1 was occupied by broom corn,—ditto of No. 2 by potatoes and sugar beets, these and other matters may form another communication. [Send it on.] I have given this exhibit of the mode of management of the farm, not but that I suppose it capable of great improvement, or excelled by others, but have stated it just as it was, in hopes that others may be led to follow the example, when by comparison the good and bad practices of each will be discovered. It will be seen that two of the main crops, the corn and hay, were very deficient. This, however, was owing rather to accidental circumstances, than to any fault of culture. The wheat is liable to injury from the frost, mildew and rust; the corn, from the grub, wire-worm, drought and short seasons; oats is almost a sure crop;—grass may suffer by dry weather and from the attacks of grasshoppers. As the crops of the farmer are thus exposed to so many enemies, it is hardly likely he will escape without material injury received by one or other of them; this he should anticipate; it is well that it should be so, it calls forth the reasoning faculties, to apply a remedy for these disasters; it awakens the subtle energies of the mind, and affords them an incentive to renewed exertion, and which is the only means whereby they may be developed. Happily clear of the vortex of trade and speculation—independent of man—the agriculturist should do all in his power to avert impending evils, and then rest contented, that he has performed his quota, to the extent of his abilities, and that to God alone does he look to crown his endeavors with increase and plenty.

In the retrospect of the past, we will find perhaps, that agriculture has received a greater impulse during the last twenty years, than in double or treble that period, previously—that during this space of time, a great number of those who have brought a scientific knowledge and enlightened education to bear upon the subject—and aid them in putting theory into practice, have thrown aside the narrow prejudices, contracted by the world at large, have entered the arena, and are bringing these pursuits up to their true standard, clearly demonstrating that herein there is an ample field for the exercise of the clearest faculties, and the deepest scientific researches, calculated to afford enjoyment to those engaged in it, and fully reimburse their expenditures.

This march of improvement is not stayed, happily we may safely assert, that at no point of time, was it more in the full tide of progress than at the present, and no limits can be set to its advancement. To quicken it our farmers themselves must lay hold of the matter, they should individually experience that a portion of *this work* is assigned *them;*—that they are called upon as integrant parts of a great community, to further its interests, by the means which they severally have at command. They should be willing, impartially, and unbiassed by old prejudices, to canvass all their actions, and bring them to the test of reason. They should not suppose that in any one particular have they reached to ultimate perfection, and yet at the same time keep this always in view, as the point to arrive at, let our real tillers of the soil do this, and the course must be onward.

A. E. T.

Philadelphia county, Oct. 25, 1839.

The Farmers.

The following just and eloquent tribute to this meritorious class of American citizens is from the pen of an eminent New England clergyman.

"There is one class of men upon whom we can yet rely. It is the same class that stood on the little green at Lexington, that gathered on the heights of Bunker Hill, and poured down from the hills of New England, which were the life-blood of the nation when the English lion was ready to devour it,—I mean the FARMERS. They were never found to trample on law and right. Were I to commit my character to any class of men, my family, and my country's safety, it would be to the farmers. They are a class of men such as the world never saw for honesty, intelligence and Roman virtue, sweetened by the Gospel of God. And when this nation quakes, they and their sons are those that will stand by the sheet anchor of our liberties, and hold the ship at her moorings till she outrides the storm."

To destroy Sorrel.

Among the pests to which the farmer is subject, there is none more annoying or vexatious than *sorrel.* While it exhausts the soil, and impedes the progress of healthful and cleanly culture, it is utterly unfit for all purposes of food. It is however fortunate for the husbandman that there is a remedy.—*Lime* is its certain destroyer. We say this from experience, having tested its efficacy the present season. We had a few acres infested with it, much to our inconvenience: on a part of this we spread sixty-six bushels and two-thirds of lime to the acre; on the balance we spread two hundred bushels of ashes. The sorrel on the limed part has nearly disappeared, while on the portion on which ashes were spread, it is as thick as ever.

Quantity of rain which has fallen in each month since January 1, 1839.

	Inches.
1st month,	5.03
2d month,	3.42
3d month,	1.50
4th month,	1.50
5th month,	6.07
6th month,	3.92
7th month,	2.51
8th month,	4.61*
9th month,	2.92
10th month,	2.83

* It rained on seventeen different days.

Philadelphia Hospital, 11th mo., 1st, 1839.

State of the Market—Nov. 6, 1839.

FLOUR AND MEAL—Demand fair and steady for superfine Flour at $6 50 per barrel. *Rye Flour*—Demand limited, sales at $4 25. *Corn Meal* per puncheon, $18 for Brandywine, and $17 for Pennsylvania.—*Buckwheat Meal*—Sales for shipment in half bbls. at $2 75 each. The ship Montezuma cleared for Liverpool on the 25th Oct. with a cargo of 5020 bbls. Flour, and the ship United States on the 30th, with 4459 barrels of Flour.

GRAIN—Sales of Pennsylvania, Juniata and Susquehanna, at $1 23 @ $1 25 per bushel afloat, and $1 22 @ $1 25 on the Schuylkill canal for good to very prime quality. Some small lots in store sold at $1 25 to $1 27; Delaware at $1 26 in store and $1 23½ afloat for good quality; inferior do. $1 20. *Rye*—Sales of Penna. at 74 @ 75 cts. *Corn*—Sales of inferior to fair Virginia yellow at 71 @ 75 cents; Delaware and Maryland yellow, at 76 @ 78 cts.; a lot of very prime Penna. round yellow at 80 cts.; Southern white 72 @ 73. There is a good demand for Corn at 76 @ 78 cts. for yellow.—*Oats*—Sales of Southern at 33 cts.

PROVISIONS—There has been an increased demand for Western Pork. Sales at $15 50 @ $15 75 cash, and $16, 4 mos. for Mess. *Bacon* at 8¼ @ 11 cts. for middling to prime Hams. *Lard*—Sales limited. *Butter* is in limited request. Sales of No. 1. and extra in kegs at 13½ and some in tubs at 12 @ 12½ cts. per lb.

CATTLE—At market—500 Beeves; 190 Cows and Calves: 530 Swine, and 1400 Sheep. *Beef Cattle*—Prices remain steady at $6 50 @ $8 for common to good quality, and $8 25 @ $8 50 for prime; 40 head unsold. Cows sold at $25 @ $35 each; Calves $5 50 @ $5 75 per hundred lbs. *Swine*—400 head sold at $6 75 to @ $8 25 for common to prime. *Sheep*—Supply nearly all taken at $1 75 @ $2 50 for Lambs; and $2 25 @ $4 50 for Sheep.

The Magazine of Horticulture, Botany, and all Useful Discoveries and Improvements in Rural Affairs, published in Boston, by Messrs. Hovey & Co., is not only issued with its accustomed regularity, but also sustains the high reputation it had previously acquired. The October number—No. LVIII—contains several papers of great interest, viz.: Art. 1. Some remarks upon several Gardens and Nurseries, in Providence, Burlington, (N. J.) and Baltimore, by the Editor, C. M. Hovey. 2.—On the propagation, cultivation, and general treatment of Epacris, by John Towne, Esq. 3.—Notices of new and beautiful plants, figured in the London Floricultural and Botanical Magazines, with remarks on the cultivation of many of the species, and some account of those which it would be desirable to introduce into our gardens. The *Miscellaneous Intelligence* which occupies a part of the work, is varied and very interesting. We know not the measure of support obtained for this work: but of one thing we are certain, that if its patronage corresponds with its merits, then is it well sustained, for it most certainly is a meritorious work. If it is not well sustained, the friends of Horticulture and Floriculture owe it to themselves—to the science—to the country, to extend to it a generous and liberal support, that it may take deep root and flourish. In its continued success they are deeply interested.

The Agricultural Almanac for 1840, calculated for the meridian of Philadelphia. This Almanac contains, besides the calendar, a variety of useful articles on agriculture—eight pages of miscellaneous matter. Appended to the Almanac is a catalogue of Implements, Machines, Tools, Seeds, &c. &c., for sale at the Agricultural Warehouse, No. 87 North Second street, Philadelphia. The improved Agricultural Implements are briefly described, and many of them illustrated by wood engravings.

From Freedom's Centinel of Nov. 1, published at Centreville, Eastern Shore of Maryland.

The Maryland Agricultural Society held their Cattle Show and Fair in Easton on Thursday and Friday last. The exhibition of live stock, domestic manufactures, and agricultural products and implements, was gratifying, in a high degree, to every beholder, surpassing as it did, any former exhibition. Several of the most important premiums, we are pleased to learn, were awarded to gentlemen of this county. The Morus Multicaulis Trees offered by the Silk Company at public sale on the second day of the Fair, were not sold for want of bidders.

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